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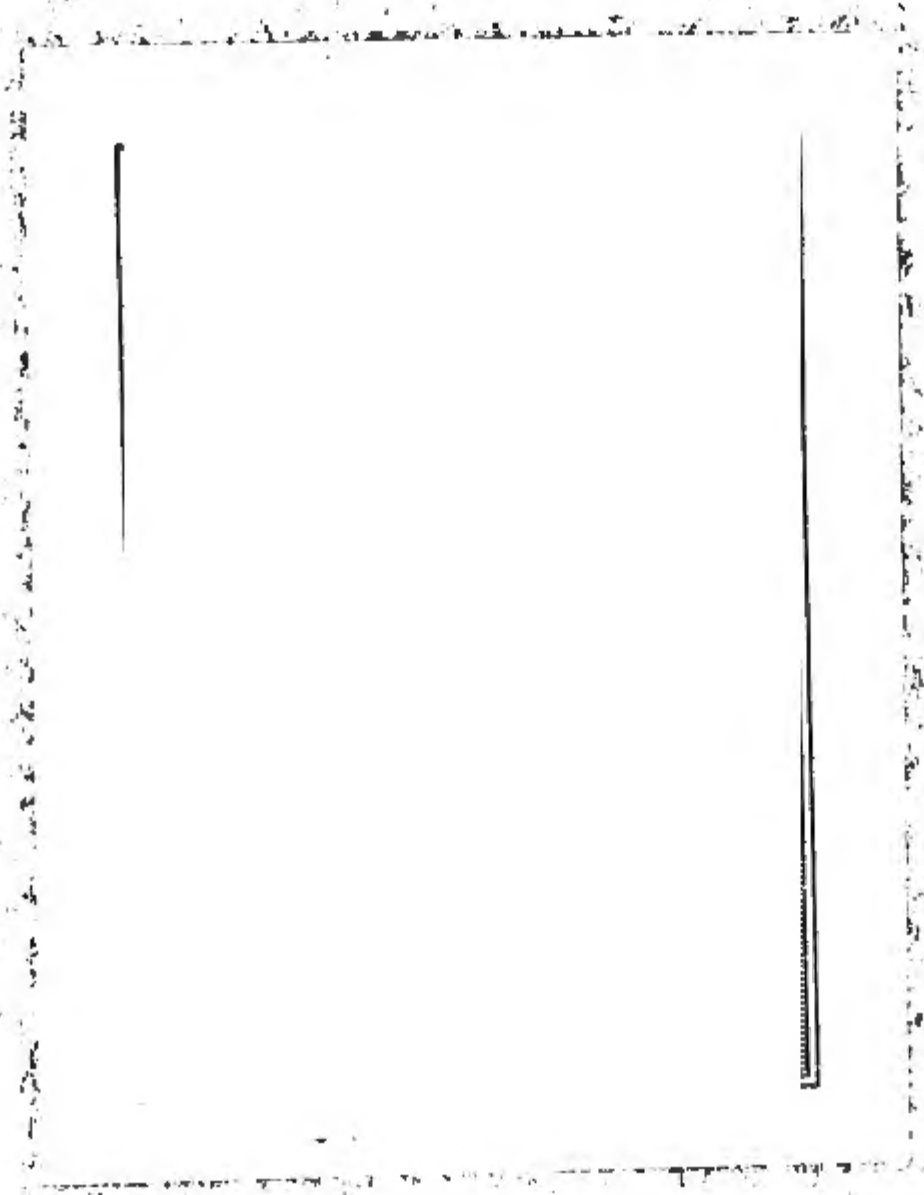
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211

From Harvard University

ANNUAL REPORTS
OF THE
PRESIDENT AND TREASURER
OF
HARVARD COLLEGE
1896-97

CAMBRIDGE
Published by the University
1898

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PRESIDENT'S REPORT FOR 1896-97.

TO THE BOARD OF OVERSEERS:—

The President of the University has the honor to submit the following Report for the academic year 1896-97, namely, from October 1st, 1896, to September 30th, 1897:—

George Otis Shattuck, a member of the Board of Overseers, died on the 23d of February, 1897, in the sixty-eighth year of his age. He had served the University for nearly twenty-one years, having been four times chosen by the Alumni to the Board of Overseers. He brought to the service of the Board professional distinction, an intimate knowledge of the charter and legislation which have determined the constitution of the University, a remarkable skill in getting useful issues out of complicated controversies, and an affectionate devotion to the interests of Harvard College. To his early training at the College, the friendships he formed there, and the ideals there set before him, he attributed much of the success of his subsequent career; so he held himself always ready to do a service to the College or to a college friend.

George Martin Lane, Pope Professor of Latin, Emeritus, died on Commencement Day, June 30th, 1897, in the seventy-fourth year of his age. He was first appointed Professor of Latin in 1851; so that his connection with the University lasted forty-six years. He was the last surviving example—and an admirable one—of a kind of appointment now no longer made; for he was appointed at twenty-seven years of age to a full professorship, without having served in any temporary or probationary position. Never was an appointment better justified. He was at once an accurate philologist, an ardent lover of literature, and an inspiring teacher. His teaching was always clear and incisive, and was often made

charming by a kindly humor. His daily tasks and duties were those of the scholar and teacher, and his interests and pleasures those of the life-long student. His mode of life was simple, and his friendships were strong and tender.

Frederic De Forest Allen, Professor of Classical Philology, died suddenly on the 4th of August, 1897, in the fifty-fourth year of his age. His first appointment at Harvard University was that of Tutor in Greek for a single year, 1873-74; but after serving six years in other universities, he came from Yale to Harvard in 1880 as full professor. He was a broad-minded, accurate, and conservative scholar, thoroughly equipped for comparative studies by comprehensive knowledge of both the Greek and the Latin language and literature. To his philological acquisitions he added much archaeological information, and particularly a thorough knowledge of the religions of Greece and Rome. His courses of instruction were intended for advanced students, and especially for graduates; and his influence on competent students and on his colleagues in the Division of Ancient Languages was strong and lasting. He had great delight in music and no little skill in musical composition. His untimely death was a serious loss to the University and to American scholarship.

Lists of the resignations and appointments of the year will be found in the Appendix, pp. 267-277

The plan of awarding John Harvard Scholarships to students in Harvard College who are of scholarship rank but have no need of pecuniary aid is working well. On the work of the year 1895-96 twenty-three scholarships of the highest class were awarded, of which eight were John Harvard Scholarships. On the work of the year 1896-97 thirty-six scholarships of the highest class were awarded, of which sixteen were John Harvard Scholarships. The increased proportion of scholarships without stipend is very noticeable. When the method has become familiar to the whole College, the proportion of John Harvard Scholarships to the scholarships with stipend will doubtless increase still farther.

The Dean of Harvard College suggests (p. 115) that the students who attain the rank as scholars which admits to the second class of scholarships, but do not need pecuniary aid,

ought also to be distinguished by some title which would indicate that they were of equal rank with those who receive scholarships with stipend. A general average of Grade *B* is the minimum standing for a scholarship of the second class. The following table exhibits the number of persons who were of

Scholarships for the year 1896-97.

Class	Number of Students.	Granted Scholarships.	Of Scholarship rank, but not holding Scholarship.	Total of Scholarship rank.	Percentage of Scholarship rank.
1897	328	..	117	117	35
1898	377	41	36	77	20
1899	473	25	35	60	13
1900	416	29	23	52	12

scholarship rank in the Classes of 1897, 1898, 1899, and 1900, with the number of those who obtained scholarships. It will be seen that the proportion of persons who attain scholarship rank rises steadily from the Freshman year to the Senior year. On the work of the Senior year no scholarships are awarded, for the Class leaves College. In the Junior Class for the year 1896-97 there were thirty-six persons who attained scholarship rank, but missed the distinction because they did not need aid. In the Sophomore Class there were thirty-five such persons; and in the Freshman Class twenty-three. In the three Classes taken together there were ninety-five persons who received scholarships, sixteen John Harvard Scholarships and seventy-nine stipend scholarships, and ninety-four persons above the minimum scholarship line who received neither money nor scholarly distinction. It appears from these figures that of the one hundred and eighty-nine persons in these three Classes who were above the minimum scholarship line one hundred and ten had no need of pecuniary aid, against seventy-nine who needed such aid.

Some critics of the methods of aiding poor scholars adopted at Harvard College have seemed inclined to believe that the award of scholarships exclusively to persons who need aid in obtaining their education has made good scholarship, or high College standing, the aim of poor men only. The facts just mentioned do not bear out this theory. It clearly appears that

a decided majority of the highest scholars in Harvard College are young men who stand in no need of pecuniary assistance. None the less, or, rather, all the more, it seems expedient to provide an honorary distinction for these successful scholars, such as the annual publication of the scholarship lists affords.

A significant change in the membership of the University during recent years has been the increasing number of students admitted to the University for short periods of residence, like one year, or two years, who nevertheless obtain some degree from the University, and not infrequently a highly honorable degree like that of Master of Arts. Some persons have supposed that the significance of the Harvard degrees has been injuriously affected by this winning of degrees after comparatively short periods of residence by persons whose main period of education has been passed elsewhere. It is, therefore, an interesting inquiry what kind of work these short-residence students have done at Harvard University. The following table answers satisfactorily some of the questions

Comparison of the work of students admitted to Senior or Junior standing between the years 1888 and 1897 with that of the College undergraduates in the year 1896-97, taking the scholarship group as the basis of comparison.

	Admitted Senior.	Admitted Junior.	Senior.	Junior.	Sophomore.	Freshman.
Total number	203	111	328	377	473	416
Of Scholarship rank	137	54	117	76	60	52
Per cent. of Scholarship rank	67	48	36	20	13	12

raised in this inquiry. Between the years 1888 and 1897, 314 short-residence students were admitted to Harvard College, 203 of them having been admitted to the Senior Class, and 111 to the Junior. In the second horizontal line of the table appears the number of these men who obtained scholarship rank, and in the third line the percentage of the total number of those admitted Senior or Junior who obtained scholarship rank, — that is, whose average standing was not below Grade *B*. The other four columns of the table contain the number of students enrolled in the four undergraduate classes in the year

1896-97, the actual number in each class that attained scholarship rank, and the percentage in each class which attained that rank. The table demonstrates that the scholarly standing of the men admitted to advanced standing between 1888 and 1897 has been decidedly higher than that of the Harvard undergraduates in the year 1896-97 as a whole, or that of the Senior Class of 1896-97. So far then as scholarship goes, the men who have been admitted to advanced standing from other institutions completely justify their admission and demonstrate their high value to the University.

This inquiry should not be confined solely to Harvard College. The Graduate School has always contained a considerable number of short-residence men; and from the nature of the case it is likely to continue to serve a considerable number of such persons. The School always contains students who are pursuing specialties so exclusively, that all their work may be done in one laboratory or in one language department; and the only tests of their work may be theses or the results of laboratory researches. The work of this class of students cannot be brought to any of the ordinary standards of comparison, although it is often of the very best quality. At any rate, the work of these men cannot be statistically exhibited. On the other hand, a considerable proportion of the Graduate students pursue regular courses of instruction, and pass the stated examinations in those courses. These examinations are graded like those of any students; and the results can be compared with each other and with the work of undergraduates. The following table exhibits the grades obtained by short-residence men who were members of the Graduate School between 1887-97. The table contains 282 one-year records made by graduates of other colleges who stayed but one year in the School, and 157 two-year records made by graduates of other colleges who remained two years in the School. It gives the average number of courses per man and the average number of *As*, *Bs*, *Cs*, and *Ds* per man, and, in another column, the percentage of *As*, *Bs*, *Cs*, and *Ds*. These records for graduates of other colleges may be compared in the table with a similar statement for graduates of Harvard College who subsequently passed one year or two years in the School. If one recalls the fact that the minimum grade for a

Graduate School. Years 1887-97.

ONE YEAR MEN.

	Graduates of Other Colleges 282 records.		Harvard Graduates 180 records.	
	Per man.	Per cent.	Per man.	Per cent.
Average number of courses	3.86	..	3.66	..
" " " <i>As</i>	1.60	41.6	1.91	52.5
" " " <i>Bs</i>	1.58	41.0	1.48	40.6
" " " <i>Cs</i>	.604	15.7	.28	7.4
" " " <i>Ds</i>	.065	1.7	.022	.6

TWO YEAR MEN.

	Graduates of Other Colleges 167 records.		Harvard Graduates 68 records.	
	Per man.	Per cent.	Per man.	Per cent.
Average number of courses	7.25	...	6.24	...
" " " <i>As</i>	4.81	59.5	3.76	60.8
" " " <i>Bs</i>	2.80	31.8	2.06	33.1
" " " <i>Cs</i>	.545	7.5	.004	5.8
" " " <i>Ds</i>	.086	1.2	.058	.9

holder of a scholarship in Harvard College is an average of *B*, it will appear at once that the records of these short-residence men in the Graduate School are far above the scholarship line for undergraduates. In all the reported records taken together the *Ds* do not average one per cent., and the average record of all the men is above *B*. The standing of these short-residence men who enter the Graduate School from other colleges is, therefore, much higher than the average standing of undergraduates, or of the Senior Class of Harvard College taken by itself. It should be observed, however, that the standing of graduates of Harvard College, who subsequently spend one or two years in the Graduate School, is higher in that School than the standing of graduates of other colleges who resort to the School. One would naturally expect this result; because Harvard graduates are more familiar than the graduates of other colleges with the Harvard methods of instruction and examination. It should be mentioned, also,

that the difference between the Harvard records and the records of men from other colleges is much smaller for the two-year men than it is for the one-year men. On the other hand, it is well known that graduates of other colleges entering the Graduate School are obliged to take less advanced courses on the average than graduates of Harvard College take, these latter having had earlier access to the less advanced courses in Arts and Sciences offered by the University.

There is another and much smaller body of students in the University who afford similar evidence of the good quality of short-residence students from other institutions, namely, graduate students in the Divinity School who have not been previously enrolled in any other Department of the University. Between the years 1882-83 and 1896-97, the number of such annual entries in the Divinity School was 139; the number of different persons being 104. The following table shows for

Scholarship of students in the Divinity School not previously enrolled in some other department of the University, between the years 1882-83 and 1896-97.

Number of such annual entries	139
Deducting for names entered twice or more	35
Number of different persons	104
Total number of annual entries with records of scholarship	68
“ “ “ weekly hours of record	397
Average number of weekly hours per student per year	5.8
Total number of weekly hours receiving Grade A	160
“ “ “ “ “ “ “ B	177
“ “ “ “ “ “ “ C	60
Percent. of weekly hours receiving Grade A	40
“ “ “ “ “ “ “ B	45
“ “ “ “ “ “ “ C	15

68 cases how high the average scholarship was, and how much it surpasses the minimum scholarship line in the undergraduate department. In the Divinity School, as in the Graduate School, a considerable number of persons pursue such special studies that they do not attend any of the regular courses of instruction in which annual examinations are held. Such persons make no records which can be used for purposes of comparison.

The general result of this investigation is that students admitted from other institutions to advanced undergraduate

standing or to graduate departments, and spending one or two years in the University, are ordinarily persons of unusual ability, ambition, and application, whose records of scholarship much surpass those of even the oldest undergraduates of Harvard College. It follows that in giving instruction to these men the University renders a valuable service to the community, in spite of the fact that their residence in Cambridge is comparatively short. The governing boards need, therefore, feel no anxiety at the increasing resort of such short-residence students to the University. On the contrary, there is reason to regard them with high favor, and make them welcome in every possible way.

The English and German universities count residence by the term or semester, and confer degrees several times during the year; and in this country the University of Chicago has set an example of conferring degrees four times a year. It has been the practice of Harvard from its foundation to confer degrees only once a year—a very natural practice so long as residence was counted only by the year, and a specified length of residence was the most important qualification for the degree. But now that the passing of examinations on a definite number of courses or half-courses of instruction has become the most important qualification for a degree, some reasons come into view for conferring degrees twice a year. The requirement for the degree of Bachelor of Arts being to pass the examinations in eighteen full courses of study, persons who have passed in sixteen courses within three years have before them but a scant half-year's work; yet they must wait a whole year to get the degree. Again, short-residence students who seek a degree from Harvard may easily find one year too short to accomplish their purpose, and yet two years may be too long. They could attain their desire in a year and a half. When students in College suffer some prolonged illness, which makes it impossible for them to pursue their studies for three or four months, they generally have to spend an extra year in attaining their degree, although the real loss of time was less than half a year. When a young man has failed to obtain his degree in four years through some neglect of duty, or through misfortune, he is now obliged to wait

for his degree until the end of a fifth year, although his deficiencies may amount to much less than a year's work. In all these cases there would be great advantage in a second date for conferring degrees, a date not far removed from the 10th of February.

The feasibility of making good use of a half-year in the College, Scientific School, or Graduate School would depend upon the number of half-courses offered in the first half-year, and on the distribution of these half-courses between elementary and required subjects, and among the different Divisions. The following table exhibits for three successive years the

Distribution of election by Seniors and Juniors among courses and half-courses.

Among courses "primarily for undergraduates" and "for graduates and undergraduates."		1894-95.		1895-96.		1896-97.	
		Courses.	Elections.	Courses.	Elections.	Courses.	Elections.
By Seniors	A	91	941	III	1080	95	991
	A ¹	24	211	27	441	■	361
	A ²	19	168	■	308	■	230
	A hf.	24	320	27	212	25	104
By Juniors	A	94	985	90	1061	97	1219
	A ¹	21	200	24	339	26	358
	A ²	18	183	18	209	23	319
	A hf.	36	542	26	428	24	484
Among courses "primarily for graduates."							
By Seniors	A	24	72	32	79	31	102
	A ¹	6	16	4	6	4	21
	A ²	4	10	7	9	3	■
	A hf.	2	4	3	17	5	29
By Juniors	A	10	13	5	■	11	17
	A ¹	1	2	0	0	1	5
	A ²	1	1	2	4	1	2
	A hf.	1	1	2	3	3	5

division of the courses in Arts and Sciences chosen by Seniors and chosen by Juniors into A, those which run through the year with three hours a week, A¹, those which run through the first half-year with three hours a week, A², those which run through the second half-year with three hours a week, and

A hf., those which run through the whole year at the rate of one or two hours a week. The same table exhibits the number of elections of these four sorts of courses respectively, first by Seniors and then by Juniors in the three successive years. The upper half of the table relates to courses "primarily for undergraduates," and "for graduates and undergraduates;" the lower relates only to courses "primarily for graduates." In the lower half of the table the proportion of half-courses to full courses is smaller than in the first half. The table deals exclusively with courses actually chosen in the three years named by Seniors and Juniors, because these actual choices give the best indication of the real range of choice for a student approaching the end of his course.

It appears from the table that there are always more available half-courses in the first half of the year than in the second half of the year; and that the number of half-courses which run through the year, and are selected by Juniors and Seniors, is approximately the same as the number accessible in the first half of the year. The class of courses marked *A hf.* has no bearing on the present inquiry, except that some of them might undoubtedly be given more rapidly so as to fall wholly in the first half of the year. The courses marked *A¹* are those which bear directly on the present inquiry; and the number of these half-courses appears to be smaller than would be desirable, if a mid-year day for conferring degrees should be established. On the whole the selection of half-courses in comparison with full courses is increasing, particularly by Juniors; but it is obvious that the occurrence of two or three large popular half-courses in some years and not in others might make it difficult to interpret the figures. The institution of full courses running through only half the year, and therefore given six times a week, would facilitate the advantageous use of a mid-year Commencement, and would be in other respects an instructive experiment.

In considering the expediency of instituting a mid-year date for conferring degrees, it is necessary to inquire not only what facilities exist within the University for bringing the course for a degree to a close at the middle of the year, but also what use of the subsequent half-year the student graduated in February could make. The professional schools of the University now

begin their courses of instruction in the autumn chiefly; but the spring half of the academic year could be utilized very well in the Divinity School, and fairly well in the Medical School on account of the multiplication of laboratory courses in the latter school. For a young man taking the degree of Bachelor of Arts and intending to be a teacher, the spring and summer which he did not need at Cambridge could be well used in Europe, or in professional observation and practice at home. The interval between the 1st of February and the 1st of October would be a convenient one for any young graduate who wished to improve himself by foreign travel before settling down to the study of a profession. Young men who were going into business might, after taking their Bachelor's degree in February, have better opportunities of getting employment in the spring than they ordinarily have in the summer. Graduates of the Scientific School looking forward to getting positions in machine shops, factories, railroads, or on engineering works in progress, might be better able to find places in the spring than in the summer. Occasionally, even degrees in Theology, Law, or Medicine might be taken with advantage, under exceptional circumstances, at the mid-year Commencement. The degree of Master of Arts and the doctorates might often be taken advantageously at that time of the year.

Shortly after the death of Professor Child the English Department resolved to raise among his friends and former pupils a permanent fund to be known as the Francis James Child Memorial Fund, the income of which should be "expended in the purchase of books and manuscripts relating to the study of English, and in their maintenance in a proper state of binding and repair." A fund of \$11,278.76 was the result of this effort, the subscription list being of a very unusual and interesting character (see Treasurer's Statement, pp. 10-12). The contributions came from many parts of the country in answer to a printed circular, and in very various amounts. They were the spontaneous offerings of persons who felt warm attachment to Professor Child, and personal gratitude for what he had done for them. The terms on which this valuable gift, precious alike for its commemorative pur-

pose and for its direct uses, was offered by the Committee representing the subscribers and accepted by the Corporation will be found in the Appendix, p. 280.

On the 12th of July, 1897, the President and Fellows received from Mr. F. V. Balch, Treasurer of the John W. and Belinda L. Randall Charities Corporation a gift of \$70,000 to be "applied to the erection and equipment of a building for use as a commons hall by such students as desire to economize, under such regulations as said President and Fellows shall from time to time determine, the names of John W. and Belinda L. Randall to be associated with the building in some manner deemed appropriate to preserve their memory." This large gift will supply the need — mentioned in the President's Report for 1895-96 — of another large dining-hall to be conducted on the plan of the Foxcroft Club. This Club has been carried on successfully for eight years on the plan of a restaurant *à la carte*, each member of the Club paying for exactly what he eats, and in addition a small annual membership fee. The present quarters of the Club are wholly inadequate; but the Randall benefaction will provide it with a spacious and well-equipped building which the Club can occupy without payment of rent. This gift will keep the University open to the intelligent sons of families of small means, by enabling them to live in Cambridge in a dignified and healthful way at small cost for their food. The University will have few more permanently beneficial endowments; for its work will not be palliative or remedial, but preventive of evil and actively productive of positive good.

From the same Randall Charities Corporation the President and Fellows received \$15,000 "for the encouragement and maintenance among the students of the University of practical education and training in philanthropic service, \$10,000 of this sum to be applied to the construction of the Phillips Brooks House to insure in that building suitable accommodations for the charitable work of the organization known as the Student Volunteer Committee so long as the said organization retain the approval of the President and Fellows, or in case this work should be given up, for kindred work at the discretion of said President and Fellows, and \$5,000 of said sum to be held and invested by said President and Fellows as a

permanent fund to be known as the John W. and Belinda L. Randall Fund, the income only to be applied to the maintenance or in the interest of said philanthropic activity on the part of the students of the University, or, in case this work should be given up, to be applied by said President and Fellows to kindred purposes." These gifts in support of the Student Volunteer Committee will contribute to make permanent the philanthropic activities of the students under the advice and direction of persons experienced in scientific charities. It is a quiet work which gives effect to the benevolent impulses and aspirations of numbers of young men who desire to take part in relieving some of the chronic evils which afflict society.

The Retiring Allowance Fund (\$319,972.28 July 31, 1897) enables the President and Fellows to provide appropriate retiring allowances for a few persons. In 1896-97 three gentlemen were in receipt of such allowances; but as yet the Corporation feels unable to assume the responsibility of a regular system of retiring allowances, which would give the Corporation a right to retire any officer at a given age, and every officer a right to claim a retiring allowance at a given age. The University cannot get the full benefit of a system of retiring allowances in making University positions more desirable, so long as the award of an allowance depends in each case on a special vote of the President and Fellows. A right to a retiring allowance would greatly enhance the value of all University positions; whereas a possibility of receiving a retiring allowance by special vote enhances that value but little. In the opinion of the President, there is no way in which a given sum of money, — like \$100,000 or \$500,000 — can be applied so productively for the University as by making it hasten the time when a thorough system of retiring allowances can be adopted.

The report of the Dean of the Faculty of Arts and Sciences contains (p. 49) a review of the action of the Faculty from 1870 to the present year on the requirements for admission to Harvard College. This statement forcibly recalls the fact that Harvard College has been for nearly thirty years endeavoring to apply to the admission examinations in a gradual and con-

servative way the principle of election of studies. Throughout this period the diversities between secondary schools in the United States, and the permitted range of studies within single secondary schools, have been increasing in a striking manner. The public high school has greatly developed and improved, being stimulated in the western states by the State Universities, and in the eastern by the pressure of educated public opinion and the increasing liberality of public expenditure on their behalf. The endowed and private schools have also undergone great changes for the better, and many of the oldest and strongest of these schools have added to their original classical course a Latin-Scientific, English, or modern course. One great difference between the public schools on the one hand and the endowed and private schools on the other has been made more conspicuous during this period. It is an exceptional public school which has a course longer than four years; whereas many of the academies, endowed schools, and private schools hold their pupils for five or six years, and some for even longer periods. In all the good secondary schools the methods of teaching have been greatly improved during the same period. When English, the other modern languages, history, and the natural sciences were first introduced into school programmes, they were but imperfectly taught, and they generally were admitted only to the inferior programmes, such as the English, modern, scientific, or commercial programmes; but now some of these newer subjects are taught with a skill and an amplitude which make them substantial elements of a sound training.

In view of these changed conditions within the province of secondary education the ultimate principle on which Harvard College tends to act in the matter of admission requirements is this — the College inclines to count for admission any subject which is taught in good secondary schools long enough and well enough to make the study of it a substantial part of a training appropriate to the pupil's capacity and degree of maturity. The total number of subjects now well taught in secondary schools being much greater than the individual pupil can master, the College tends to accept any selection of subjects — made by school, parents, or pupil — which may fairly be said to constitute a sound training, and is disposed

to leave to the secondary school its full share of the responsibility for making wise selections. The future attitude of the College is likely to be not continued insistence upon certain school studies as essential to preparation for College, but insistence that the gate to a university education shall not be closed on the candidate in consequence of his omission at school of any particular studies, provided that his school course has been so composed as to afford him a sound training of some sort. In a democratic nation, spread over a continent, and in which secondary education presents great local diversities, colleges and universities, if they would retain a national character and influence, must be careful not to offer unnecessary obstacles to the admission of young men of adequate though diversified preliminary training. Harvard College has long represented the principle of election of college studies, and has found nothing but advantage in the free application of that principle. It is natural that the College should seek to further the adoption of the same principle in secondary education and in requirements for admission to College. At the same time Harvard College has no desire to make its own terms of admission lower or easier. Its effort has always been in quite the opposite direction. In its past efforts to raise the standard of admission requirements it has been admirably supported by the best-organized and most ambitious secondary schools in the country, and it confidently expects this support in the future. The College recognizes the fact that the elective principle in secondary education adds to the difficulty of organizing and managing a secondary school, and adds to the cost of carrying it on; but it also believes that the introduction of this principle adds greatly to the dignity, merit, and serviceableness of any academic school. It enables a school to serve well and develop effectively a greater variety of minds and characters; and this is as great a merit in a secondary school as it is in a college, and quite as important to the country, inasmuch as the number of pupils in secondary schools must always exceed the number in colleges and universities.

The interest of Harvard College in this question is all the more intense, because the College thoroughly accepts the general policy of the University which requires a Bachelor's

degree for admission to all professional courses of study. If, so far as Harvard University is concerned, access to the learned and scientific professions is to be restricted to those who have previously pursued successfully a college or scientific school course, it is all important that the conditions of admission to that college or scientific school course shall be wisely and liberally conceived. It is, therefore, not surprising that the Faculty of Arts and Sciences has devoted the greater part of its time for a year and a half to the study of new requirements for admission to Harvard College and the Lawrence Scientific School.

The membership of the Faculty of Arts and Sciences becomes yearly more numerous. In the year under review there were 97 members, of whom 91 were in residence. The time of the Faculty has been of late given chiefly to discussions of general policy, although it still retains some administrative business, all of which is prepared for it beforehand by its Standing Committees. The organization of the Faculty into Divisions and other Standing Committees is now reasonably satisfactory, having been arrived at as a result of experience during the past seven years.

It again appears, in the long list of courses of instruction offered by this Faculty, how few the largely attended courses are, how numerous those which are attended by only a small number. The most cursory inspection of this list will demonstrate to anyone the great costliness of university instruction in Arts and Sciences. There are but two modes in the world of conducting a University — one is large endowment and the other is government support.

The Dean of the Faculty prints a list of the summer courses of 1897 (p. 91), from which it clearly appears that little use is at present made of the summer courses by students already enrolled in Harvard College or the Lawrence Scientific School. Although the total number of summer students was 717, the number of students already registered in other departments of the University who attended any summer course was only 61.

The Dean of Harvard College reports (p. 103) that at the beginning of the academic year 1896-97 the College numbered 1754; at the beginning of the year 1897-98 it numbered 1813.

Harvard College still includes nearly one half of the whole number of students in the University, and is the principal feeder of the Graduate School, Law School, and Medical School. Its growth and present size are largely due to the intelligence and prosperity of the dense population which lives within one hundred miles of Cambridge. The local resort to Harvard College from this admirable population makes a strong nucleus around which gather hundreds of students from other parts of the country.

The attention of the Board of Overseers has been already invited to the Dean's discussion of the John Harvard Scholarships, and to his suggestion of an extension of the principle which they embody.

The Dean of the Lawrence Scientific School points out the steps by which a closer relation between the School and Harvard College is to be gradually brought about. The first of these steps is the raising of the requirements for admission to the Lawrence School till they reach the level of the requirements for admission to College, although the permitted range of options will probably be wider than in the College. The second measure is the facilitating of the transfer of students from the lists of one department to those of the other. So large an amount of instruction is now common to the two departments, and so many courses in one may be counted towards the degree in the other, that a student in Harvard College may now easily win the degree of A.B. on studies prescribed in one or other of the four years' courses in the Lawrence Scientific School, and then subsequently procure the degree of Bachelor of Science by pursuing his studies in the Lawrence Scientific School one additional year, or at most two additional years. This indeed is undoubtedly the most profitable way for the individual of obtaining the degree of Bachelor of Science; for it puts the degree of A.B. under the degree of S.B., and so makes the S.B. represent five or even six years of elaborate training.

The Dean also points out that the proportion of Special Students in the Scientific School is rapidly declining. Since most of the students in the Lawrence Scientific School have a particular profession distinctly in view, the election of studies

in the School is necessarily reduced to a choice between four-years' courses. This restriction of the choice of studies within well-marked lines is the distinguishing feature of the Scientific School as compared with the College; and since this distinction is founded on the necessities of the case it is likely to persist.

The Dean prints (p. 124) a table showing the number of students registered in the Lawrence Scientific School in each year since its foundation — a table which for the first forty years indicates that the School had not, like the College, found its way to a wide usefulness, but for the last ten years demonstrates that the way has been found. The rate of growth since 1887 promises a large School within ten years more. The progress of the School is the more striking, because at least five years out of the last ten have been years of business disaster and prolonged depression throughout the United States.

The present School of 400 students depends chiefly on the laboratories and recitation rooms of Harvard College for its accommodation. It possesses but three buildings of its own — the original building on Kirkland Street erected by Abbott Lawrence, the founder of the School, the old Gymnasium near the junction of Cambridge Street and Broadway, which Mr. Henry Bromfield Rogers gave to the University in 1856, and the wooden building which was originally erected nearly fifty years ago for Professors Agassiz and Eustis. The Corporation during the year under review allotted to it the building on Jarvis Street which was originally erected for athletic uses; but the School has not found the means of fitting up that building for its use.

In the President's Report for the year 1895-96 it was mentioned that the attempt to keep the accounts of the Lawrence Scientific School separate from those of Harvard College had been abandoned, the instruction in these two departments having been commingled in such a way that a division of the cost had become practically impossible. It illustrates still farther the tendency to amalgamate the Scientific School with the College that on the 10th of May, 1897, the President and Fellows ordered that the Bursar be authorized to assign rooms in College buildings to persons intending

to enter Lawrence Scientific School on the same terms and in the same way as to those intending to enter Harvard College.

The Dean of the Graduate School presents many interesting statistics concerning the students of that Department. A table of the birth-places of Graduate students registered in 1894-95, 1895-96, and 1896-97 shows that fewer than one half the students were born in the New England states. It also appears that the School draws its membership from many other institutions widely scattered over the country. Since Graduate students are in residence a much shorter time on the average than undergraduates, the number of persons annually presented for degrees is large in comparison with the total number of students in the School. The Faculty Division in which the largest number of higher degrees — thirty — were taken in 1896-97 was Modern Languages, and the Division in which the next largest number — twenty-six — were taken was History and Political Science. The average time that had elapsed between the A.B. and the Ph.D. of the candidates in 1897, omitting a few extreme cases, was almost exactly three years.

For the year 1896-97 only one Harvard Fellow was nominated by the Department in which he had studied; but for the year now current five John Harvard Fellows were duly appointed on nomination of their respective departments, which were Economics, Classics, Chemistry, and Mathematics.

The Dean gives some instructive statistics concerning the age of the Masters of Arts and Doctors of Philosophy in 1897 at the time of taking their degree. One third of the Masters and three fifths of the Doctors of Philosophy were 28 years old or over, and there were only four Doctors out of twenty-five who were under 26 years of age.

The School renders a considerable service to persons who have already entered upon their life work. Thus in 1896-97, there were in the School 36 teachers in actual service in schools and colleges near Boston, and 10 ordained ministers. The ministers were students of Philosophy, or of Economics and Sociology. Nearly one half of the members of the School were not studying with a view to a degree, and in this class of students were found some of the most valued members of the School.

The Dean again expresses the opinion that the degree of A.B. should not be conferred on persons registered in the Graduate School, but that persons desiring this degree should be obliged to register in Harvard College.

The Divinity School had a deficit of \$1,305.37 for the year 1896-97 according to the Treasurer's Statement; but it should be observed that the income of the fund of the Frothingham Professorship of Ecclesiastical History was accumulating to an amount larger than this deficit, the Corporation not being yet ready to make use of that Fund.

The Faculty of the School was increased during the year by the appointment of an Assistant Professor of Homiletics.

An important change was made in the composition of the Association of the Alumni. It was decided that persons who had been in the School for one or more years, but had not received the degree, might, after consultation with the Faculty, be elected associate members. The Association will, therefore, resemble hereafter the Association of the Law School Alumni. This change is a recognition of the fact, already alluded to in this Report, that some of the very best work of the School is done by students who remain but one or two years in its Graduate Department.

The raising of the tuition fee of the Divinity School from \$50 to \$150, which was mentioned in the last Report and went into effect at the beginning of the current year, has not affected the number of students. The School is now in all respects on a scientific basis, and is entirely comparable in this respect to other departments of the University. Its scholarship and beneficiary funds are, however, larger in proportion to the number of students than in any other department of the University. The direction which benefactions should hereafter take is the endowment of the professorships and of the Library.

The Library of the Law School steadily increases in value, About 3000 volumes a year have lately been added to it, and it now contains about 41,000 volumes and 4400 pamphlets. The incessant use made of some sets of reports has made it necessary to provide duplicate sets. There are now in the

stack two sets of the English Reports, of the Federal Reports, and of the Reports of all the states except West Virginia. In the Reading Room there is a third set of the English and the Federal Reports, and of the Reports of twelve states. The publication by the professors of selected cases in their several topics saves the library books from a destructive wear and tear. Indeed it became evident some years ago that the method of instruction adopted by the School involved the destruction of those pages in the reports on which stood the cases constantly referred to by the professors. The separate publication of selected cases arranged by topics has, therefore, become a part of the Langdellian method of teaching Law.

The growth of the Law School is exhibited in an interesting table in the Dean's Report (p. 161). It will there be observed that the rapid growth of the School has taken place within nine years past. The demand for a degree in Arts, Letters, or Science as a condition of entrance to the School as a candidate for the degree in Law has had no effect to check this growth.

Two costly improvements will need soon to be made for the Law School. Its building will have to be enlarged, and the class of the first year will have to be divided into two sections. Fortunately the earnings of the School are large enough to warrant both these expenditures.

An instructive table in the Dean's report (p. 165) shows that among the New England colleges, Amherst, Bowdoin, Brown, Dartmouth, Trinity, Williams, and Yale have been steady feeders of the Law School, much the largest number having come from Yale. From Princeton University there has been a steady resort to the Harvard Law School since the year 1885-86. After Harvard and Yale the most considerable feeder among the New England Colleges is Brown.

The attention of the Overseers is invited to the report of the Dean of the Medical School (p. 166) with special reference to the obvious development in that School of laboratory instruction and research, a development which has taken place in all good schools of medicine and has revolutionized the teaching of the schools as well as medical and surgical practice. Thus, the only important change made in the

course of instruction during the year under review was the addition of clinical microscopy to the electives of the fourth year. Among the changes mentioned in the equipment of the School is the provision of 150 portable electric lamps, suitably shaded for microscope work, in order that microscopic work may be done in the various laboratories by artificial light. It is mentioned that the work in experimental physiology required of first-year students has been increased sixfold. Under the head of embryology it is said that the collection of microscopical slides for class instruction now numbers over 8000. Under the head of bacteriology the Dean reports that about 7000 examinations of suspicious cases of sore throat have been made in the laboratory, and that the antitoxine of diphtheria has been supplied to about 2000 cases. For cases of diphtheria, therefore, the bacteriological laboratory both makes the diagnosis and supplies the means of effective treatment. Among the numerous researches carried on in the School laboratories during the year under review was one on the contamination of well water with the bacillus of typhoid fever; another on the morphology of the hog cholera bacillus; and a third on the bacteriological investigation of 312 cases of surgical infection.

The laboratories of the School have already become insufficient for the proper instruction of the regular students and for the accommodation and furtherance of medical and surgical research. Although it is only fourteen years since the present Medical School building was erected, not only the building, which has been once enlarged, but the lot itself has become too small for the purposes of the School. The number of students has increased from 243 in 1883 to 554 in 1896-97, and the whole function and process of the School has so changed that much more space for each student is now required than in 1883. It is time to consider how and where a new building, or new buildings, should be planned. The problem is complicated by a need which is felt more strongly as the years go by, — namely, the need of a hospital directly connected with the School, and under the charge of its Faculty. It is a great obstacle to the progress of the School that teachers can seldom be invited to the School from other cities — men who have elsewhere demonstrated their capacity for teaching or research of a high order. Since the University has no control over existing hospitals, it

is generally impossible to offer suitable clinical opportunities to the men whom on scientific grounds the University desires to make members of its staff.

The Medical School five-sixths supports itself, assuming for it the gratuitous use of its land and building. Its income from endowments in 1896-97 was \$20,626.91, from gifts for present use \$2,551.61, from term-bills \$111,618.78, and from sundries \$3,868.50, the total receipts being \$138,665.70. For enlargements of its grounds, buildings, and equipment the School is entirely dependent on the contributions of persons who desire to further medical education and research.

The resources of the Medical School were increased during the year by the bequest of \$50,000 under the will of William Oxnard Moseley of Newburyport (A.B. Harvard 1836) for the purpose of establishing a professorship in the Medical School, the President and Fellows to decide what the professorship shall be. The President and Fellows are further authorized to apply the income of this fund to the increase of the principal until a sum adequate for the purpose named shall have been accumulated, and they are directed to preserve the principal as a perpetual trust in the memory of Mr. Moseley's son, William Oxnard Moseley (A.B. Harvard 1869), who graduated at the Medical School in 1878 and died in 1879. The decided increase in recent years of benefactions for medical uses is a subject for gratitude and congratulation in both the University and the community.

The year 1896-97 was a very prosperous one in the Dental School, in spite of the fact that the examinations for admission had been improved and the tuition fees raised. The infirmary continues to serve a very large number of patients. In the Operative Department 7567 patients were treated during the year; and in the Mechanical Department 647 sets of artificial teeth were supplied beside numerous appliances for fractured jaws, and cleft and perforated palates, and for regulating the teeth. The mechanical appliances for regulating the teeth numbered 149. All this work is done by advanced students under the direction of competent instructors, demonstrators and assistant demonstrators. The School has gradually elaborated an excellent system which secures for its students much

practice under safe guidance, and also confers great benefits on thousands of persons who cannot afford to pay the ordinary fees for dental services.

The Bussey Institution met with a serious loss by an incendiary fire on July 19th, 1897, which destroyed two of the large barns with most of their contents, including ten out of twenty-three horses. The barns were insured; but there was, nevertheless, a considerable loss.

The expenses of the Horticultural Department apart from salaries do not greatly exceed its receipts from prizes and the sale of flowers and plants. Thus, in 1895-96, the excess of expenses over receipts was only a little more than \$100, and in 1896-97 the excess was but \$450. In addition to meeting this excess of the running expenses over the receipts, the Institution pays the cost of building the green-houses and keeping them in repair, and the salary of the Instructor.

An addition was made to the teaching staff of the School by appointing an Instructor in Natural History, whose service began with the year 1897-98.

The stable belonging to the mansion house at the Bussey Institution was assigned in March, 1897, to Professor Theobald Smith for the accommodation of cattle under observation while suffering with bovine tuberculosis. Another room in the second story of the Stone Building was also fitted up for his use as an additional laboratory.

The Veterinary School had a deficit in 1896-97 of \$5,487.34, after spending gifts for immediate use which amounted to \$1,738. The actual difference, therefore, between its current receipts and its current expenses was \$7,225.34. The number of students in the School was 52, and the sum received on term-bills was nearly \$7,000. In the current year the number of students has fallen considerably.

The number of animals treated at the Village Street Hospital (see p. 188) was decidedly smaller in 1896-97 than in the preceding year, the receipts from dogs increasing, but the receipts from horses declining. The Charity Hospital, or Free Clinic, at Northampton Street, treated a large number of animals for a great variety of diseases and injuries, and served a useful

purpose by adding to the clinical privileges of the students. The hopes of the Corporation and the Visiting Committee of the Board of Overseers in regard to the support of the Free Clinic by voluntary contributions, or by the earnings of the forge, were disappointed, and this charity became a heavy charge on the Veterinary Department as a whole.

The financial situation of the Veterinary Department is a difficult one. The School itself inevitably has a deficit. In a few good years the Hospital and forge have had a surplus which overcame the deficit in the School; but in the more numerous bad years the net earnings of the Hospital and the forge have been insufficient to overcome the deficit of the School. In 1896-97 the Northampton Street forge and Free Clinic procured for both hospitals and forges a deficit in addition to the habitual deficit of the School.

These conditions compelled the Corporation at the close of the year under review to make a decided reduction in the annual expenditures of the Department. Two assistant surgeons were not reappointed; all salaries were reduced by twenty per cent.; and the forge at the Free Clinic was closed. It is hoped that these measures will prevent the recurrence of a deficit. The Free Clinic, or Charity Hospital, is maintained; but instead of being open all day for the reception and treatment of animals, it is opened only for from two to three hours every afternoon.

The Dean of the School calls attention (p. 187) to the fact that the Harvard Veterinary Department is in competition with those of Cornell and the University of Pennsylvania, both of which are largely endowed. The curriculum of the Harvard School is now a satisfactory one, and it has steadily raised its standards in all respects from the time it was organized in 1882. It needs, however, to be put on a higher scientific level by means of endowed professorships of Comparative Anatomy, Physiology, and Pathology. As was stated in the President's Report for 1895-96, the desirable consummation is the union of the Medical School and the Veterinary School under a single faculty of medicine of the highest scientific quality, the combined schools aiming to produce not only learned and skilful practitioners, but also scientific biologists in all the fields closely connected with Medicine.

The opening of the Reading Room in Gore Hall till ten o'clock at night has reduced by one quarter the number of books loaned during the year for use outside the building; and the increasing number of books reserved in Gore Hall and accessible from nine in the morning till ten at night has a tendency to decrease the recorded use of books within the building. Nevertheless the real effect of the new Reading Room, open thirteen hours a day, is to increase very much the total use of books by students.

A table in the report on the Library (p. 197) seems to show that the percentage of users of books among the undergraduates has been declining during recent years; but the material from which this table is made up is the records of students who took out books at the general delivery desk in Gore Hall. It is the accessibility in the Reading Room of large numbers of books in great variety, and the opening of the Reading Room in the evening, which have diminished the number of students registered at the general delivery desk. The Sunday use of the Library, after remaining remarkably constant for six years, exhibited a sudden increase in the year 1896-97.

The Librarian reports (p. 200) that the free space for the reclassification of the books, which was obtained by reconstructing old Gore Hall, has been entirely assigned, and that hereafter the reclassification will be carried on at a disadvantage. The fact seems to be that to maintain easily and without loss of labor a classification of the books convenient for the purposes of students nearly twice as much shelving is required as the books themselves would occupy.

In fifteen years 699 books have been lost from the Library, of which 494 are missing from the reserved books, and 205 from the stack. The Assistant Librarian mentions that the introduction of a regular inspection of the shelves in the stack, and the withdrawal from the open shelves in the Reading Room of 500 volumes which are now issued for hall use upon presentation of signed call-slips, have much reduced misplacement and loss.

Although the Library has received within twenty years \$186,000 in new funds for the purchase of books, yet the rate of interest has fallen off during the same period to such

an extent that the income of all the book funds has only increased about \$4,000. Meantime the membership of the University has increased in a much larger ratio, and the new methods of study and research have created a wide demand for books. The University spends for salaries, services, freight, light and heat, at the Library more than twice as much as it spends on books and binding, so costly is it to order, receive, shelve, and catalogue the new books and pamphlets of the year, and to deliver for use within and without the Library the books, new and old, which the users of the Library ask for.

The Librarian returned from a visit to England early in October, and resumed his work with great satisfaction; but in a few days he was stricken down by a sickness which terminated fatally on the 22d of October. Thus suddenly ended an extraordinarily successful and influential service of twenty years as Librarian of the University, a happy period during which Mr. Winsor also published many important contributions to American history and cartography.

Nearly 12,000 specimens of dried plants were received at the Gray Herbarium during the year 1896-97, and 9270 sheets of mounted specimens were added to the organized portion of the Herbarium. The publications of the Herbarium for the year will be found enumerated in the report of the Curator (p. 208).

Although the carrying on of the work of the Herbarium with the present staff was assured for another limited period by gifts for immediate use amounting to \$3,310, yet no progress was made toward the provision of a permanent support for this invaluable scientific establishment.

On account of the changes which have taken place within the last ten years in the accepted classification of plants it will soon be desirable to make another revision of Dr. Gray's *Manual of Botany for the Northern United States*, — a handbook which two generations of both professional and amateur botanists have found eminently serviceable.

Few people realize what a large variety of plants are cultivated in the Botanic Garden. An estimate has lately been made by Mr. Fernald, Assistant in the Herbarium, who has

been employed by the Director of the Garden to examine and correct the labels throughout the establishment. Mr. Fernald estimates the total number of perennials cultivated out of doors at 3500 species, and those cultivated in the greenhouses at 2000 species. The species raised annually from seed carry the total number to over 7000.

An interesting experiment was tried during the year under review by filling a plat with species to illustrate the herbaceous plants spoken of by Virgil. The Director (p. 212) reports that the plat was well filled, and gave pleasure to many visitors.

Two of the greenhouses at the Garden are in a very dilapidated condition; but there is no money with which to build better.

Steady progress is made in the instalment of specimens in the Botanical Museum. This work is done by means of generous gifts to the Museum for immediate use; but the Botanical Museum remains without permanent endowment.

At the suggestion of the Curator of the Herbarium, and with the consent of the Director of the Botanic Garden, the single Committee appointed by the Overseers to visit the Garden and the Herbarium has been divided into two Committees, one for each of these establishments.

The Park Commissioners of the City of Boston have made good progress on the roads about Peter's Hill, the last extension of the Arnold Arboretum. The Commissioners have also built a heavy granite wall along the entire eastern boundary of the Arboretum.

All planting work for the improvement and extension of the Arboretum was stopped during the year for want of money; and little was done beyond the necessary maintenance and the thinning of over-crowded plantations.

The Director points out (p. 215) that a very large endowment is needed to maintain the Arboretum in proper condition, and to develop its usefulness by exploration, research, and publication. By the favoring coöperation of the City of Boston, and the frugal expenditure of the limited and shrinking income of the Arnold Fund (about \$6,500 a year) the Arboretum will become in twenty years one of the most beautiful and valuable scientific gardens in the world; but it will fall far short of the

legitimate influence on popular education of such a living collection, if it be not provided with at least six times its present income.

The number of students in the Chemical Laboratory was substantially the same as in the year 1895-96, and they just about exhausted the accommodations of Boylston Hall. In October, 1896, the number was 578, and it gradually declined to 510 on the 1st of June, 1897. The scientific work of the Laboratory was prosecuted with the usual activity (see the list of published papers p. 219). The Department also prepared a new descriptive list of the "Requirements in Chemistry for Entrance to Harvard College and the Lawrence Scientific School." This is a new effort to contribute to the satisfactory establishment of Laboratory Chemistry as an instructive and disciplinary study in secondary schools. It is a contribution to a series of experiments on science in schools which Harvard University has been promoting with more or less success for thirty years past.

The equipment of the Jefferson Physical Laboratory has been steadily improved by the labors of the assistants, janitors, and mechanics regularly employed in the building. The Director reports that the janitors have become skilful plumbers and steamfitters, and also equal to the care of dynamos and motors.

The Laboratory has been unable to supply the demand upon it for teachers of Physics and trained electricians. All the professors of the Department have carried on scientific investigations; but only those of the Director were brought to publication during the year under review.

The Director of the Observatory, in presenting his interesting report of the work done during 1896-97 (see p. 224) at the Observatory in Cambridge and at the Arequipa Station in Peru, calls attention to the fact that, while the Observatory is surpassed by many other observatories as regards buildings and instruments, its considerable endowment for current expenses permits the employment of a large number of assistants—forty in all—by whose assiduous labor

extensive investigations are prosecuted and completed. Persons who desire to promote astronomical science have a great opportunity of doing lasting good in a monumental way by supplying the permanent buildings and instruments which are needed at both of the astronomical stations of Harvard University. It has been abundantly proved that a large telescope at Arequipa could do a great amount of new work under extraordinarily favorable atmospheric conditions. With one exception — the new brick building for the storage of the photographic plates — all the buildings on the Observatory Hill in Cambridge are of wood, and are otherwise unsuitable.

The rapid publication of volumes of the *Annals of the Observatory* continues. With the exception of volumes 23, 28, and 32, of which only the first part has been published in each case, the first thirty-six volumes of the *Annals* and volume 40 are now completed.

It is interesting to observe the part which women are taking in the technical work of various sciences. Thus in the Cambridge Observatory nearly one-half the assistants are women. In bacteriological laboratories women are now successfully employed in examining specimens of water, milk, meats, etc., their patience and fidelity making them valuable assistants in such investigations. For bibliographical work too women have in late years demonstrated their fitness.

For twenty years past the Zoölogical Laboratory at Newport on the private grounds of the Director of the Museum of Comparative Zoölogy has been liberally opened in the summer to students of the Zoölogical Department. This privilege is now to be withdrawn; because the Director will need all the available room in the Laboratory for his own assistants in preparing for publication the material which has been accumulating during all that time on the marine fauna of Narragansett Bay. The University will, therefore, have to look elsewhere for summer sea-side facilities for its advanced students of Zoölogy.

The report of the Director for 1896-97 (p. 235) not only gives a complete account of the scientific work which was in progress at the Museum during that year, but also sketches the interesting scientific expedition to the Fiji Islands which the Director is now conducting. The ample list of the pub-

lications of the Museum for the year will be found in the report of the Director (p. 241).

The Director also gives an interesting account of the services to the Museum and to zoölogical science of Theodore Lyman, for many years an assistant in the Museum, and for nineteen years (1868-80, 1881-88) a member of the Board of Overseers. Mr. Lyman inherited a competence, and gave his time to science, to the public service, and to good institutions of education and charity. Harvard College never had a more admirable or a more devoted son.

The Department of Geology and Geography has its quarters at the Museum, where it has accumulated valuable means of illustrating the instruction given to its students. Two special means of illustration deserve mention. The first is the Gardner collection of photographs of mountain, river, coast and other scenery, which now numbers 3594 photographs. Many of these photographs have been reproduced on slides for use in the lantern. They constitute a valuable means of geological illustration. The second novel collection consists of a series of geographical models constructed after original designs by Professor Davis, and representing a deeply dissected mountainous region descending to the sea, a coast plain on the border of mountains, and an irregular coast of promontories and bays. Ten sets of these models have been engaged by various schools. It is hoped that means will be provided for making an extended series of typical land forms in models capable of rapid multiplication at a low price.

On the first day of January, 1897, the Trustees of the Peabody Museum of American Archaeology and Ethnology transferred to the President and Fellows (see App. p. 278) all the property held by them for the foundation and maintenance of the said Museum and for the endowment of the Peabody Professorship of American Archaeology and Ethnology, in order that the ownership, management, and control of the collections, funds, and other property held for the purposes of said Museum might be united in the hands of the President and Fellows. This act of the Trustees was duly authorized by the Legislature of Massachusetts (Chapter 191 of the Acts of

the year 1896). The articles of agreement (see App. p. 279) between the Trustees of the Peabody Museum and the President and Fellows provide that the Museum shall thereafter be in the immediate charge of a Faculty responsible to the Corporation and Overseers; that the President of the University shall be the President of the Faculty, and the Peabody Professor or Curator of the Museum shall be a member thereof; that the other members of the first Faculty shall be Messrs. Stephen Salisbury, Charles P. Bowditch, and Francis C. Lowell, and that vacancies in the Faculty shall be filled by nominations made by the Faculty and confirmed by the President and Fellows. This organization is copied from that of the Museum of Comparative Zoölogy.

The two separate Boards of Trustees which were created rather more than a generation ago for the administration of museums connected with the University, — namely, the Trustees of the Museum of Comparative Zoölogy, and the Trustees of the Peabody Museum, have now ceased to exist, their powers and duties having been successively transferred to the President and Fellows; and the motive which led to their creation has also ceased to exist. So long as the Corporation allowed only five per cent. on funds held for the professional and scientific departments, while they were earning six or seven per cent. on the average of their investments, there was a motive for the creation of separate trusts; but when in 1866 the Corporation, at the instance of the Board of Overseers, adopted the policy of dividing on all their funds, not specially invested, the average rate of interest earned on the whole body of their general investments, the pecuniary motive which had led to the creation of separate bodies of trustees ceased to be effective. It is, therefore, improbable that such separate bodies will be created in the future.

It is hoped that the union of the Peabody Museum with the University will give greater stability and security to the Museum, and bring to it new friends without estranging any of its old ones.

The report of the Director (p. 242) gives a complete account of the numerous accessions to the Museum and of the researches carried on under its direction. Explorations have been carried on with productive energy in many widely separated fields.

Nearly 9000 photographs were added to the Fogg Art Museum during the year 1896-97, and the collection of lantern slides now numbers 1169. Since photographs are now the best means of illustrating monuments of architecture and sculpture, and the work of great painters and great schools of painting, the symmetrical development of the collection of photographs is the first object in the administration of the Museum.

Just before the expiration, on May 10, 1897, of the third period of seven years during which the Gray Collection of Engravings had been loaned to the Boston Museum of Fine Arts, the President and Fellows gave notice to the Trustees of the Museum that they did not propose to renew the agreement under which the collection had been deposited at the Museum. It had been on deposit there for twenty-one years, during which period it had been admirably cared for, and had been increased considerably in value through the additions made to it by a judicious use of a portion of the income of the Gray Fund. It was not until the completion of the Fogg Museum of Fine Arts that the President and Fellows possessed in Cambridge a suitable fire-proof place of deposit for the collection. A proper place for the storage and exhibition of the prints having at last been secured, the Corporation yielded to the strong desire of the Department of Fine Arts and of other University teachers that this valuable collection might be made available in Cambridge. The collection, arranged in new and carefully designed cases, occupies about one-fifth of the upper floor of the Fogg Museum.

The resort to the Museum in the daytime is always satisfactory, and on Sunday afternoons it is large. The Museum has thus far been kept open in the evening, especially for the study of photographs. The Director reports that there were 219 evening visits by members of the University and others for the purpose of studying photographs from the cases. The collection of photographs is made use of by the Classical, German and Architectural departments, arrangements having been made to lend photographs from time to time to these departments for use outside of the Museum. The collection of casts of Greek and Greco-Roman sculptures, though small, is now fairly representative. The Gray Collection of engravings

and etchings is an especially valuable collection for purposes of university instruction.

The Director of the Semitic Museum calls attention to the fact that a separate building is needed for that collection, and that other institutions, like the University of Chicago and the University of Pennsylvania, have made large provision for the accommodation of their Semitic and other Oriental collections. Nearly one-half the sum needed for an appropriate Museum building has been promised; but these promises are contingent on the raising of the whole sum needed. From \$60,000 to \$70,000 would cover the cost of an adequate building.

The Curator of the Mineralogical Museum presents his first report (p. 258). Since the establishment of the Department of Mineralogy and Petrography, and the separation of these subjects from Chemistry and Geology which took place in 1894, a great deal of work has been done in the Mineralogical Museum and the laboratories connected therewith, to make the Museum attractive and instructive to the public, and the elementary and advanced instruction more efficient, and to accumulate material and apparatus for research. The mineral collection has been carefully revised, cleaned, and so much condensed that the greater part of the gallery has been saved for other purposes. The systematic collection of minerals for students' use has been enlarged and entirely rearranged; and a collection of over 1000 crystals has been formed to facilitate the study of Crystallography. A list of the papers published by the department will be found in the Curator's report (p. 260).

Like all other natural history collections the Mineralogical Museum requires constant expenditure, in order that it may not lose its relative standing among similar collections. Since minerals, unlike animals and plants, have been made once for all, it is necessary to secure fine specimens whenever they happen to be brought to light. For this purpose a mineralogical cabinet needs endowment, just as a herbarium does, or a collection of zoölogical specimens. Even to keep a collection of minerals in good order requires much labor on it every year. The Mineralogical Museum ought to be enabled

not only to pay for such labor, but to seize all the opportunities which offer of acquiring good specimens.

Radcliffe College made no decided gain in the year 1896-97; but fully maintained its numbers and its efficiency. It continues to receive gifts and bequests to a substantial amount. In 1896-97 the gifts and bequests received amounted to \$97,396.53.

The Associates of Radcliffe College have decided that the College shall remain where it is on Garden Street. Accordingly other properties have been bought in the immediate neighborhood of Fay House, bringing the holdings up to 115,742 square feet. Two wooden school houses, which stood on lots recently bought, supply temporary additional accommodations. Suitable permanent buildings are much needed.

The question whether Radcliffe College shall confer the degree of Doctor of Philosophy has been strongly presented in an individual case, a Radcliffe student having fulfilled such conditions of resident study and examination as would, if she were a student in Harvard University, entitle her to the degree of Doctor of Philosophy in the Division of Modern Languages.

As evidence that the degrees given by Radcliffe College are valued by mature persons of experience and good judgment, it may be mentioned that of the sixty-five alumnae who held the certificates of the Society for the Collegiate Instruction of Women fifty-one have now exchanged the certificate for the corresponding Radcliffe degree.

The number of students who were engaged during the year in the various sports for which a physical examination is required was approximately 479, excluding the sport of lawn tennis. This figure is obtained from a table made from the cards given by the Director of the Gymnasium to those who passed the required physical examination, (see Appendix, p. 283). The percentage of those taking some part in the various sports to the whole number of students in the several classes and departments was as follows: —

Class of 1897	22%	Scientific School	25%
Class of 1898	27	Graduate School	1
Class of 1899	19	Law School	5
Class of 1900	22	Medical School	1
Special Students	6		
Whole College	21		

It is impossible to state with any degree of accuracy the number of students actually taking a serious part in the sports. There were at one time 365 men under Mr. Lathrop's charge practising for track athletics, not including bicycling; but the number examined for that sport, including bicycling, was 166. There were at one time at least 195 men playing baseball; but the number examined was only 93. It is probable that from 600 to 700 men took part in the out-of-door sports named, and it is certain that many others played tennis often.

It is very unlikely that a student who takes an active part in athletic sports can win good standing as a scholar; but on the other hand a smaller proportion of the athletes get put on probation in Harvard College than of other students. This remark is not true of Scientific students.

The evil of excessive training has not been cured. The base-ball team of last spring was distinctly overworked; and half the crew gave out in the four mile race. In all probability the nervous strain resulting from prolonged training, many exciting contests, and an anxious sense of responsibility has not been sufficiently considered.

The Committee on the Regulation of Athletic Sports gave much attention during the year to the revision and publication of the rules governing athletics. A copy of these rules is given in the Appendix, p. 284. Almost every one of these regulations has been discussed and fought over for years; and almost every one was at first resisted to the utmost by the main body of the undergraduates and by many graduates. They have gradually been adopted, at least on paper, by the leading eastern colleges and universities; and at present they commend themselves very generally to the well-informed friends of intercollegiate athletics.

The transfer of the principal sports to the Soldier's Field is being gradually accomplished. Foot-ball and base-ball have been definitely transferred to the other side of the river; and it

is hoped that new boat houses will be built there during the coming season. Professor Hollis, the present Chairman of the Athletic Committee, has been of great service in planning and directing the improvement of the Field, the erection of new banks of benches, and the building of the base-ball cage, and in planning the new boat houses.

In January, 1897, the Corporation, at the request of the Committee on the Regulation of Athletic Sports, and with the approval of the brother and representative of the deceased giver of the Carey Building on Jarvis Field, voted to take that building for the general purposes of the University, and to allow therefor the sum of \$15,000, with the understanding that after the payment of the money the Athletic Association should have no farther rights in the building, but that said sum of \$15,000 should be expended by the Athletic Committee for permanent improvements on the Soldier's Field on some definite plan to be approved by the Corporation. The Carey Building had ceased to be convenient for athletic uses; and on the other hand money was greatly needed for the erection of benches and a building for base-ball practice on the Soldier's Field. The last-mentioned building is now being erected, and great improvements have been made upon the Field.

The use of Holmes Field for games attended by throngs of spectators was permitted by the Corporation for the last time in the spring of 1897. Two long banks of seats with steel frames were erected temporarily on Holmes Field, but were removed in the summer to Soldier's Field. One of these banks, situated on the South side of the track, caused a temporary variation in the intensity of the magnetic field in the Jefferson Physical Laboratory which was so disturbing, that it would not have been possible, with due regard to the proper work of the laboratory, to keep such a steel bank of seats on Holmes Field.

In 1896-97 the Medical Visitor, Professor George W. Fitz, had two assistants, Drs. Bailey and Bunker. The following table gives an idea of the amount of work done by the Medical Visitor and his assistants for three years past. The office of Medical Visitor was instituted in the year 1893-94. The cases reported as "at home," etc. were not under observation,

	1894-95.	1895-96.	1896-97.
Cases of Illness	2169	2356	2018
"At Home," etc.	306	76	68
Visits to students in rooms	660	780	1159
Calls at rooms, students out	800	180	216
Consultations at Claverly and at L. S. S.	600	800	1047

and the nature of the illness was unknown. The number of these cases is decreasing. A table showing the number of cases of certain enumerated diseases in the different months of term-time is printed in the Appendix, p. 282. The most unfavorable months are December, February, March, and April, the worst of all being March. The cases of dangerous contagious diseases were very few in number; and of typhoid fever there were but nine cases, six of which were brought hither in October.

The need of an infirmary appears in the return of the average number of students ill at one time in Cambridge. This number varies with the different months from 2 in June to 66 in March, the average being 37.7.

In the Catalogue of 1889-90 there were eight Professors Emeriti. In the Catalogue of the current year there is but

Professors Emeriti, 1791-1897.

Name.	Subject.	Dates of appointment and retirement.	Length of Service.
Edward Wigglesworth	Theology	1765-1791	26 years
Aaron Dexter	Chemistry and Materia Medica	1788-1816	28 "
James Jackson	Theory and Practice of Physics	1812-1836	24 "
Henry Ware	Theology	1805-1840	35 "
John Collins Warren	Anatomy and Surgery	1809-1847	38 "
Simon Greenleaf	Law	1838-1848	15 "
Andrew Preston Peabody	Christian Morals	1860-1881	21 "
Oliver Wendell Holmes	Anatomy and Physiology	1847-1882	35 "
Henry Jacob Bigelow	Surgery	1849-1882	33 "
James Russell Lowell	Belles Lettres	1855-1886	31 "
Henry Warren Torrey	History	1860-1888	28 "
Wolcott Gibbs	Chemistry	1860-1887	24 "
Joseph Lovering	Physics	1838-1888	50 "
Francis Bowen	Philosophy	1858-1889	36 "
George Martin Lane	Latin	1851-1894	43 "

one, Professor Wolcott Gibbs. This distinction has been but sparingly conferred by the University. The first Professor Emeritus was Edward Wigglesworth, and his appointment dates from his retirement from the Hollis Professorship of Divinity in 1791. More than half the Professors Emeriti have been appointed within the last sixteen years. A complete list is given on the preceding page.

The number of degrees conferred annually by the University has about doubled in ten years. It will be noticed in the following table, however, that the number of degrees of Bachelor

Annual Number of Ordinary Degrees from 1888 to 1897.

	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.
A.B.	254	212	232	253	293	332	348	360	392	381
A.B. out of course	11	4	10	11	17	17	21	28	25	19
S.B.	1	1	7	2	7	9	19	23	29	25
S.B. out of course	—	—	—	1	3	—	1	2	2	2
B.A.S.	—	—	—	—	1	1	1	—	2	2
D.B.	—	2	1	3	1	3	2	6	10	4
D.B. out of course	—	—	—	—	1	—	—	—	—	—
D.B. and A.M.	2	1	3	3	3	1	2	—	—	—
LL.B.	21	17	30	29	45	52	66	88	108	103
LL.B. out of course	2	2	4	5	—	4	4	3	7	2
LL.B. and A.M.	11	10	18	17	10	17	14	—	—	—
M.D.	69	54	65	55	84	70	116	60	99	72
M.D. out of course	—	—	—	—	—	—	—	1	—	2
M.D. and A.M.	3	—	3	11	9	6	8	5	—	—
D.M.D.	6	17	15	14	14	14	14	17	22	32
D.M.D. out of course	—	—	1	—	—	—	—	—	—	—
V.M.D.	1	5	6	6	6	4	7	10	13	20
A.M.	30	23	30	44	76	66	87	81	98	107
A.M. out of course	—	2	—	1	—	2	6	6	3	2
Ph.D.	7	4	—	—	—	—	16	16	18	25
Ph.D. and A.M.	—	—	3	7	5	12	—	—	—	—
S.D.	—	2	—	1	1	1	2	2	—	1
	402*	356	473	493	576	611	734	708	823	798
Per cent. A.B.	60.9	60.6	61.8	59.6	58.8	57.1	50.3	54.8	50.7	50.1
Per cent. A.M.	11.4	10.1	13.9	16.6	17.9	17.0	15.9	13.0	12.3	13.6
Total per cent. of A.B. and A.M.	71.3	70.7	79.9	76.4	71.7	74.1	66.2	67.8	63.0	63.7

* Including 4 Civil Engineers.

of Arts has not increased at the rate of the annual totals. The per cent. of Bachelors of Arts has fallen during the ten years from about 60 per cent. to about 50 per cent. The degree of Master of Arts, on the other hand, is now conferred much more frequently than it was ten years ago, or even six years ago. The conferring of the Master's degree with the degrees of Bachelor of Divinity or of Law, and of Doctor of Medicine or Philosophy, ceased in 1893-95. No striking changes in the relative numbers of the different degrees annually conferred need be anticipated in the immediate future, except that the number of degrees of Bachelor of Science will probably increase somewhat rapidly, because large classes have been entering the Lawrence Scientific School.

The following table, the first three lines of which are taken from the preceding table, shows that of late years about one quarter of all the ordinary degrees annually conferred by the University are conferred on persons who are not Harvard Bachelors or Masters of Arts.

Per cent. of scientific and professional degrees conferred from 1894 to 1897 inclusive on persons not Bachelors of Arts or Masters of Arts of Harvard University.

	1894.	1895.	1896.	1897.
Per cent. A.B.	50.8	54.8	50.7	50.1
Per cent. A.M.	15.9	18.0	12.3	16.6
Total per cent. A.B. or A.M.	66.2	67.8	53.0	63.7
Per cent. receiving scientific or professional degrees but already holding A.B. or A.M. of Harvard University	8.6	8.5	11.4	9.0?
Total per cent. holding or receiving A.B. or A.M.	74.8	76.3	74.4	72.7
Per cent. receiving scientific or professional degrees but not already Bachelors of Arts or Masters of Arts of Harvard University	25.2	23.7	25.6	27.3

On the 11th of January, 1897, the Corporation passed the following vote in general accordance with a recommendation it had received from the Faculty of Arts and Sciences March 6th, 1896 :

Voted, that until further order of the President and Fellows any Doctor of Philosophy, or of Science, who shall be approved for the

purpose by the department with which his work is most closely related may be authorized by the Faculty of Arts and Sciences, for a period not exceeding four months, to give instruction under the direction of the Faculty, either gratuitously or for such fees as he himself may fix and collect.

It was the object of this vote to provide a regular method by which any Doctor of Philosophy or Science might, if approved by his department for the purpose, give lectures or offer instruction for a limited period without having received a formal appointment from the President and Fellows. It was supposed that such opportunities to demonstrate their capacity for teaching might be welcome to some ambitious young men who looked forward to the profession of teaching. The fact that such young men held the degree of Doctor of Philosophy or Doctor of Science was considered sufficient evidence of fitness. The vote of the Corporation differed from the measure adopted by the Faculty in two respects ; — it made the Faculty instead of the Corporation the authorizing body, and it required the instructor to collect his own fees.

On the 12th of April, 1897, the President and Fellows invited the Government of the Massachusetts Institute of Technology to consider whether some plan could not be devised for a useful alliance between the several schools of applied science in Boston and Cambridge.* The Government of the Institute having indicated their willingness to confer with the President and Fellows on this subject, Committees of Conference were appointed by the two institutions, and proceeded to make a thorough examination of the subject. At the meeting of the President and Fellows on June 21st, the Committee to confer

* The initial action of the President and Fellows was as follows : —

"The President and Fellows of Harvard College being convinced that the great public interest of professional scientific education would be promoted by an alliance between the Schools of applied science in Boston and Cambridge respectfully invite the government of the Massachusetts Institute of Technology to consider whether some plan cannot now be devised for the accomplishment of such an alliance. To bring it about the President and Fellows will cordially enter into any practicable arrangement not inconsistent with their legal obligations.

"Voted to send a copy of the preceding invitation to the Executive Committee of the Massachusetts Institute of Technology and to inform them that the President and Fellows will appoint a committee of conference on notice that a conference is desired."

with the Committee of the Institute having made a preliminary report, it was voted "that this Board is willing to modify or limit the present scheme of instruction in technical subjects at Cambridge, if the Corporation of the Institute is willing to consent to some satisfactory plan for the ultimate union of the two institutions." At the close of the academic year no conclusion had been reached.

The estate on the corner of Holmes Place and Massachusetts Avenue was purchased in May, 1897; and the house was immediately converted into chambers for students with the expectation that they would probably be occupied by Law students. This piece of ground lay directly between the site of Hastings Hall and that of Austin Hall, and was so eligible a position for a large, and perhaps high, structure built as a private investment, that the Corporation felt compelled to acquire it for the protection of their adjoining buildings, although they could ill afford to make the unprofitable investment.

The class of 1872 celebrated the twenty-fifth anniversary of their graduation by appropriate festivities, and by giving to the College a clock and bell for the tower of Memorial Hall. While the Class was establishing the four clock faces in dormers in the roof of the tower, the Corporation took the opportunity to replace the slating on this steep roof by copper. The smoke flue, which before discharged just above the bell-deck at the top of the brick tower, was at the same time carried up at the expense of the Class to the very top of the tower roof, in order that the clock might not be injured by smoke or dust. If other Classes follow the example thus set by the Class of 1872, an interesting series of visible gifts to the College may be expected.

A Committee of the Corporation was appointed early in the academic year to confer with the Class Day Committee in regard to the exercises around the Tree on Class Day. The conferences resulted in making these exercises less violent, and in improving the arrangement of the banks of seats, particularly with reference to ample exits for the compact assemblage.

Through the exertions of Miss Marian C. Jackson, supported by a committee of ladies, a sum of money was raised to pay

for several years the salary of an additional instructor in the History and Art of Teaching, — a gift which the President and Fellows were glad to accept. This important subject has heretofore been represented only by an assistant professor. The appointment of an additional instructor enabled the Faculty to offer a more ample set of courses during the current year. The same ladies provided for the delivery during 1897-98 of a short course of lectures on Manual Training. The subscribers were doubtless influenced in making their contributions by their desire that the students of Radcliffe College, many of whom intend to teach, should have ampler instruction in methods of teaching and the organization of school systems. During the current academic year, while Assistant Professor Hanus is on leave of absence, a portion of his work is carried on by Mr. Samuel T. Dutton, Superintendent of Schools, Brookline, Mass., and Mr. Ray Greene Huling, Headmaster of the English High School, Cambridge.

In May, 1897, on the proposition of Professor Paine, the Corporation assumed the responsibility for a course of chamber concerts to be given in Sanders Theatre during the winter of 1897-98 in connection with Professor Paine's course of instruction on the works of the great masters. This series of concerts is now in progress, affording a new and precious opportunity for instruction and enjoyment to Professor Paine's students and to the public interested in music of this character.

The tuition fee of the Cambridge departments of Harvard University except the Divinity School has remained at \$150 ever since September, 1869. Some years ago, however, laboratory fees were established for all scientific courses in which the students were engaged in laboratory work. These fees constitute for the students who pay them a sensible addition to the tuition fee. In the year 1896-97 there were in the College, Scientific School, and Graduate School taken altogether 1204 students who paid a tuition fee of \$150 without any additional laboratory fee. In the same departments there were 979 students who paid additional sums for laboratory fees ranging from \$2.50 to \$56. The sum of the laboratory fees paid by these 979 students was \$14,769.50, the average payment being \$15.09. The Catalogue of the year enumerates 2417 students in these three departments. The 234 students not included in the

above statement paid fees by the course, none of them paying as much as \$150 a year. These figures show that only about two-fifth of the students in the College, Scientific School, and Graduate School paid laboratory fees in 1896-97. Under these circumstances the charging of special fees to those students who have the privilege of laboratory instruction seems more equitable than to make an addition to the tuition fee paid by all or nearly all students, in spite of the fact that the charging of an additional fee in courses on the sciences may restrict somewhat the resort to those courses.

In November, 1896, the Corporation ordered that from and after the 31st of August, 1897, two bills shall be issued for each academic year to students in all departments of the University, the first bill to be issued February 1st, and the second bill one week before Commencement. For students in the Cambridge departments of the University the first bill is to include two-thirds of the fixed annual charges for instruction and use of rooms, and the whole of such fees for lockers and laboratory courses, and of such other incidental charges as can then be determined. The second bill is to include all dues for the year which have not been included in the first bill. Of late years three term-bills have been made out in each year. The change will reduce the amount of work in the Bursar's Office without bringing any additional burden upon the students.

The gifts and bequests to the University in 1896-97 amounted to \$282,777.15, not counting the cash and securities transferred to the President and Fellows by the Trustees of the Peabody Museum. This amount is somewhat larger than the amount received in 1895-96.

The attention of the Overseers is respectfully invited to the following reports of the several departments and scientific establishments. It is impossible for the President to summarize these reports even in the briefest manner; for they contain a great number of interesting and important facts, and valuable independent discussions of academic problems and results.

CHARLES W. ELIOT, *President.*

CAMBRIDGE, 11 JANUARY, 1896.

REPORTS OF DEPARTMENTS.

THE FACULTY OF ARTS AND SCIENCES.

TO THE PRESIDENT OF THE UNIVERSITY : —

SIR, — I have the honor of presenting my report, as Dean of the Faculty of Arts and Sciences, for the academic year 1896-97.

Membership of the Faculty.

The number of members of the Faculty for the year 1896-97 was ninety-seven, of whom ninety-one were in attendance at the University during the year. The full membership comprised the President, forty-five Professors, one Associate Professor, twenty-five Assistant Professors, one Tutor, and twenty-four Instructors. Professors Goodwin, Greenough, and Münsterberg, Assistant Professor (now Professor) Channing, and Instructors Santayana and Fletcher had leave of absence for the year. One hundred and twenty-two instructors and assistants, appointed for the term of one year, and not members of the Faculty, also took part in the instruction and examination carried on under its direction.

The Faculty has again, as in the previous year, been called to lament the death of two of its members. GEORGE MARTIN LANE, born 24 December 1824, Bachelor of Arts of Harvard College of 1846, Doctor of Philosophy of the University of Göttingen of 1851, and Doctor of Laws of this University of 1894, Pope Professor of Latin *Emeritus*, died on the morning of Commencement Day 1897, after nearly half a century spent as a Professor in the service of the University, deeply beloved throughout this period by an ever increasing circle of associates and pupils, and leaving one of the most honored names to be found in the catalogue of American scholars. FREDERIC DE FOREST ALLEN, born 25 May 1844, Bachelor of Arts of Oberlin College of 1868 and Doctor of Philosophy of the University of Leipzig of 1870, Professor of Classical Philology at this University since 1880, died suddenly in the ripeness of his powers and scholarship, 4 August 1897, causing a vacancy among

students of classical learning, a loss to the University, and a bereavement of his colleagues, which must be long and sorrowfully felt.

Organization.

The number of Divisions of the Faculty was increased by two, in the course of the academic year: the Division of Pure and Applied Mathematics being broken up into the two Divisions of Mathematics and Engineering; and the Division of Natural History, into those of Biology and Geology. The list of Divisions and Departments now stands as follows:—

- | | |
|---------------------------------------|---|
| I. Semitic Languages and History. | VI. The Fine Arts. |
| II. Ancient Languages. | VII. Music. |
| A. Indo-Iranian Languages. | VIII. Mathematics. |
| B. The Classics. | IX. Engineering. |
| III. Modern Languages. | X. Physics. |
| A. English. | XI. Chemistry. |
| B. German. | XII. Biology. |
| C. French. | A. Botany. |
| D. Italian and Spanish. | B. Zoölogy. |
| E. Germanic and Romance
Philology. | XIII. Geology. |
| IV. History and Political Science. | A. Geology and Geography. |
| A. History and Government. | B. Mineralogy and Petrography. |
| B. Political Economy. | XIV. American Archaeology and Eth-
nology. |
| V. Philosophy. | |

There were seventeen Standing Committees of the Faculty during the academic year 1896-97; namely, those on Instruction; on Admission Examinations; on Admission from other Colleges; on Changes of Elective Studies; on Special Students; on Fellowships and other Aids for Graduate Students; on Scholarships and other Aids for Undergraduates; on the Tabular View; on the Reception of Students; of Freshman Advisers; on Public Entertainments; on the Opening of the College Year; on Summer Courses; on Admission to the Scientific School from other Scientific Schools; of Advisers to Scientific Students; on Four Years' Courses in the Scientific School; and on Commencement Parts. The Committee on Changes in Elective Studies was discontinued in the course of the year, such a committee being found to be no longer needed. All the above-named Committees have charge of important branches of the work of the Faculty; some of them being invested with full executive powers.

Special Committees were moreover appointed from time to time, to assist the Faculty in relation to matters not referable to any of the

Standing Committees. Of these, the Committee on Requirements for Admission filled an important place during the year 1896-97. I shall speak in a later part of my report of the work done during the year on this subject by the Committee and the Faculty.

Instruction in 1896-97.

The following is a list of the Courses of Instruction which were given in the year 1896-97 under the authority of the Faculty of Arts and Sciences; with a statement for each course of the name of the instructor and the number and classification of the students. This list differs in some particulars from the one contained in the Catalogue for 1896-97; since the Catalogue names all courses provided beforehand and offered to the election of students, while I here mention only those which were actually given.

A few of the courses announced by the Faculty of Arts and Sciences are also among those announced by the Faculty of Divinity; namely, most of the courses in Semitic Languages and History; Classical Philology 54; Philosophy 5, 6, 7, 13, and 20e; History 5, 6, 7, 21, and 20a; and Government 8. In the programme for 1897-98, some of the courses in Government are, in like manner, simultaneously announced by the Faculty of Law. With the exceptions here named, the courses announced by the Faculty of Arts and Sciences are under its exclusive direction.

Courses of Instruction are classed as *full courses* or *half-courses*, according to the estimated amount of work in each, and its value in fulfilling the requirements for a degree. Half-courses are designated in the following list by the abbreviation: *Hf.* All others are full courses.

The following abbreviations are used to designate the classes of students in the several courses:—Gr. for Graduate Student; Se. for Senior; Ju. for Junior; So. for Sophomore; Fr. for Freshman; Sp. for Special Student of Harvard College; Sc. for Scientific Student; Di. for Divinity Student; Law for Law Student; Me. for Medical Student; Bu. for Bussey Student; R. for Radcliffe Student. The enumeration of students may, in some instances, be incomplete; since it sometimes happens that a student is in regular attendance on a course, without being officially enrolled or otherwise recorded as participating in it.

COURSES OF INSTRUCTION GIVEN IN 1896-97.

Semitic Languages and History.

For Graduates and Undergraduates :—

1. Professor LYON. — Hebrew. — Davidson's Introductory Hebrew Grammar. — Explanation of parts of Genesis and of the Psalm-book. 3 hours.
2 Se., 1 So., 1 Sp., 3 Di. Total 7.
6. Professor LYON. — Babylonian-Assyrian History. — Contact of the Babylonians and Assyrians with the peoples of the Mediterranean coasts and islands. — Diffusion of the Babylonian-Assyrian culture through the Phoenicians. *Hf.* 1 hour.
1 Gr., 8 Se., 6 Ju., 2 So., 1 Sp., 1 Di. Total 19.
12. Professor LYON. — History of Israel, political and social, till the Death of Herod the Great. 2 hours.
48 Se., 85 Ju., 29 So., 3 Fr., 9 Sp., 4 Di. Total 128.
- 16¹. Professor TOY. — History of pre-Christian Hebrew Literature. 4 hours.
1st half-year. 1 Ju., 1 So., 3 Di. Total 5.
18. Professor TOY. — History of the Hebrew Religion, with comparison of other Semitic religions. 2 hours. 1 Gr., 1 Ju., 11 Di. Total 13.
14. Professor TOY. — History of the Spanish Caliphate. — The Korān. *Hf.* 1 hour.
1 Gr., 3 Se., 1 So. Total 5.

Primarily for Graduates :—

2. Professor TOY. — Hebrew (second course). — Syntax. — Interpretation of parts of the Prophets and the Poetical Books. — Criticism of selected portions of the text. 2 hours. 1 Gr., 1 Se., 1 Ju., 2 Di. Total 5.
- 3¹. Mr. SKINNER. — Classical Aramaic (Syriac). — Rödiger's *Chrestomathia Syriaca*, ed. 3. — The Peshitto version of the New Testament. 2 hours.
1 Se., 2 Di. Total 3.
- 3². Mr. SKINNER. — Jewish Aramaic. — Kautzsch's *Biblisch-Aramäische Grammatik*. — Interpretation of parts of Ezra, Daniel, and the Targums. *Hf.* 2 hours. 3d half-year. 1 Se. Total 1.
4. Dr. REISNER. — Assyrian. — Lyon, *Assyrian Manual*. — Delitzsch, *Assyrian Grammar*. — Abel and Winckler, *Keilschrifttexte*. 2 hours.
1 Se., 1 Ju., 1 Di. Total 3.
7. Dr. REISNER. — Arabic. — Lansing's *Grammar*. — Nuhab-al-Mula. — *The Thousand and One Nights*. 2 hours. 1 Gr., 1 Ju., 1 Di. Total 3.
10. Dr. REISNER. — Phoenician. — Schröder, *Phönizische Sprache*. — *Corpus Inscriptionum Semiticarum*. *Hf.* 1 hour. 1 Gr., 1 Di. Total 2.
11. Professor TOY. — The Talmud. — *Rosh ha-Shanah*. *Hf.* 1 hour.
1 Gr. Total 1.

COURSES OF RESEARCH.

- 20a. Professor LYON. — Assyrian Grammar. 1 Di. Total 1.

Here is classed, for convenience, the following course :—

1. Dr. REISNER. — Egyptian. — Erman, *Grammar*. — Von Lemm, *Chrestomathy*. 2 hours. 2 Gr., 1 Di. Total 3.

Indo-Iranian Languages.

For Graduates and Undergraduates:—

- 1st. Professor LANMAN. — Elements of the Sanskrit language. — Sounds and inflexions. — Reading of easy prose and verse. *Hf.* 8 hours. 1st half-year. 4 Gr., 1 Se. Total 5.
- 1st. Professor LANMAN. — Sanskrit (continued). — Reading of the classical texts in Lanman's Reader. — Translation at sight. *Hf.* 8 hours. 2d half-year. 1 Gr., 1 Se. Total 2.
- 2nd. Professor LANMAN. — Sanskrit (second year). — Course for rapid reading. — Select episodes from the Mahā-Bhārata. *Hf.* 8 hours. 1st half-year. 2 Gr. Total 2.

Primarily for Graduates:—

- 3rd. Professor LANMAN. — Sanskrit. — Introduction to the language and literature of the Vedas. *Hf.* 8 hours. 2d half-year. 2 Gr. Total 2.
5. Professor LANMAN. — Pāli (advanced course). — The Sacred Books of Buddhism. — Dhamma Padda. — Sutta Nipāta. — Majjhima Nikāya. 2 hours. 2 Gr. Total 2.

COURSE OF RESEARCH.

20. Professor LANMAN. — Special advanced study of selected Sanskrit works, with practice in the use of the Harvard collection. 1 Gr. Total 1.

Classical Philology.

Primarily for Undergraduates:—

GREEK.

INTRODUCTORY LECTURES provided for the students in Courses B and C.

- (1) Dr. GULICK. — Lysias and his Times.
 (2) Professor WHITE. — Socrates and Plato.
 (3) Asst. Professor MORGAN. — Lyric and Elegiac Poetry.
 (4) Professor WRIGHT. — The Greek Theatre and Dramatic Performances.

A. Dr. COOLEY. — Homer (Iliad and Odyssey, selections). — Reading at sight. 3 hours. 2 So., 19 Fr., 10 Sp. Total 31.

F. Dr. COOLEY. — Greek Prose Composition (elementary course). *Hf.* 8 hours a fortnight. 3 So., 6 Fr., 2 Sp. Total 11.

B. Dr. F. C. BABBITT, Dr. GULICK, and Dr. COOLEY. — Lysias (selections). — Plato (Apology and Crito). — Elegiac and Lyric Poetry (selections). — Euripides (Medea). — Reading at sight. 3 hours. 5 So., 53 Fr., 1 Sp. Total 59.

C. Dr. F. C. BABBITT, Dr. GULICK, and Dr. COOLEY. — Lysias (selections). — Plato (Apology and Euthyphro). — Elegiac and Lyric Poetry (selections). — Euripides (Iphigenia among the Taurians). — Reading at sight. 3 hours. 8 Ju., 1 So., 80 Fr. Total 84.

E. Dr. F. C. BABBITT.—Greek Prose Composition (second course).—Goodwin's Moods and Tenses. *Hf.* 3 hours a fortnight.

1 Se., 8 Fr. Total 9.

1. **Dr. F. C. BABBITT.**—Homer.—Herodotus. 3 hours.

1 Gr., 3 Ju., 10 So., 1 Sp. Total 15.

2. **Dr. GULICK.**—Aristophanes (Birds).—Aeschylus (Prometheus Bound).—Thucydides (Book I).—Sophocles (Oedipus Tyrannus).—Collateral reading of the Plutus of Aristophanes.—Reading at sight. 3 hours.

2 Gr., 1 Se., 3 Ju., 26 So. Total 32.

3. **Mr. C. P. PARKER.**—Greek Prose Composition (third course).—Translation and original composition. *Hf.* 1 hour.

2 Se., 3 Ju., 10 So. Total 15.

LATIN.

INTRODUCTORY LECTURES provided for the students in Courses *B*, *C*, and *D*.

(1) **Asst. Professor HOWARD.**—Cicero in Retirement.—The Metrical and Musical Element in Roman Comedy.

(2) **Dr. BORSFORD.**—The Roman Historians.

(3) **Asst. Professor MORGAN.**—Livy.—The Roman Theatre.

A. Mr. C. P. PARKER.—Cicero (selected orations).—Virgil.—Practice in reading at sight. 3 hours.

1 Se., 5 So., 17 Fr., 11 Sp. Total 34.

F. Dr. MATHER.—Latin Composition (elementary course). *Hf.* 3 hours a fortnight.

1 Gr., 1 Se., 6 Fr., 1 Sp. Total 9.

B. Dr. MANNING.—Cicero (De Senectute).—Livy (Books XXI and XXII).—Terence (Phormio and Heautontimorumenos).—Reading at sight. 3 hours.

3 So., 28 Fr., 1 Sp. Total 32.

C. Drs. MANNING and MATHER.—Cicero (De Senectute).—Livy (Books I and II).—Terence (Phormio and Andria).—Reading at sight. 3 hours.

3 Ju., 5 So., 91 Fr., 6 Sp. Total 105.

D. Asst. Professors MORGAN and HOWARD.—Cicero (De Senectute).—Livy (Books I and II or XXI and XXII).—Terence (Phormio and Adelphoe).—Reading at sight. 3 hours.

1 Gr., 2 Ju., 4 So., 49 Fr., 1 Sp. Total 57.

E. Dr. MANNING.—Latin Composition (second course).—Translation of English narrative. *Hf.* 3 hours a fortnight.

1 Gr., 1 Se., 2 So., 8 Fr., 1 Sp. Total 13.

1. **Asst. Professor MORGAN.**—Horace (Odes and Epodes).—Tacitus (selections from the Histories).—Reading at sight. 3 hours.

2 Se., 3 Ju., 34 So., 1 Fr., 1 Sp. Total 41.

2. **Mr. C. P. PARKER.**—Tacitus (selections from the Histories).—Horace (Odes and Epodes).—Reading at sight. 3 hours.

1 Gr., 4 Se., 1 Ju., 36 So., 1 Sp. Total 43.

3. **Mr. C. P. PARKER.**—Latin Composition (third course).—Extended study of Idiom.—Practice in translation. *Hf.* 1 hour.

1 Se., 5 Ju., 11 So. Total 17.

For Undergraduates and Graduates :—

GREEK.

6. Professor WRIGHT. — Demosthenes (On the Crown, with parts of the Oration on the Embassy). — Aeschines (Against Ctesiphon). — Aeschylus (Seven against Thebes). — Sophocles (Antigone). — Aristophanes (Frogs). — Collateral reading. 8 hours. 3 Gr., 4 Se., 17 Ju., 1 Sp. Total 25.
7. Professor WRIGHT. — Greek Prose Composition (fourth course). — Written composition in the style of Demosthenes and of Plato, with studies of classical models. — Translation of selections of standard English (rhetorical and philosophical). 1 hour. *Hf.* 2 Gr., 2 Se., 2 Ju. Total 6.
8. Professor WHITE. — Plato (Republic). — Aristotle (Ethics, Books I-IV and X). 8 hours. 4 Gr., 7 Se., 2 Ju. Total 13.
10. Professor WHITE. — The Life of the Ancient Athenians, described and illustrated by the aid of the Literature and of the Monuments. 2 hours. 7 Gr., 9 Se., 27 Ju., 12 So., 3 Sp., 15 Sc. Total 73.

LATIN.

6. Asst. Professor HOWARD. — Suetonius (selections). — Pliny (selected letters). — Juvenal (the principal Satires). — Martial (selected epigrams). 8 hours. 6 Gr., 3 Se., 17 Ju., 1 So. Total 27.
7. Professor ALLEN. — Practice in Latin expression and style (narrative and descriptive). — Translation into Latin prose. — Original essays in Latin. *Hf.* 1 hour. 6 Gr., 2 Se., 3 Ju. Total 11.
8. Professor SMITH. — Plautus (three plays). — Lucretius. — Horace (Satires and Epistles). 8 hours. 4 Gr., 5 Se., 3 Ju. Total 12.
12. Professor SMITH. — History of Latin Literature (Prose). — Lectures, with direction of the students' private reading. 3 hours. 16 Gr., 2 Se., 1 Di. Total 19.

CLASSICAL PHILOLOGY.

Primarily for Graduates :—

- Seminary. — Professors ALLEN and SMITH, directors for 1896-97. Training in philological criticism and research. — Euripides (Alcestis) and Lucretius. 8 hours. 6 Gr. Total 6.
25. Asst. Professor MORGAN. — Introductory Course in the Text-Criticism and Interpretation of Classical Authors: for 1896-97, Sophocles (Trachiniae). *Hf.* 3 hours a fortnight. 8 Gr., 1 Di., 1 R. Total 10.
- 33¹. Dr. GULICK. — Greek Elegiac, Iambic, and Lyric Poetry. *Hf.* 8 hours. 1st half-year. 4 Gr., 1 Se. Total 5.
- 33². Professor ALLEN. — Pindar. *Hf.* 8 hours. 2d half-year. 9 Gr. Total 9.
38. Professor WHITE. — The Comedies of Aristophanes. 8 hours. 9 Gr., 3 Se. Total 12.
54. Mr. BORSA. — The Acts of the Apostles. 2 hours. 1 Gr. Total 1.

50². Asst. Professor MORGAN. — Roman Satire from Ennius to Juvenal. — Lectures and special studies. *Hf.* 3 hours. 2d half-year.

10 Gr. Total 10.

47¹. Professor ALLEN. — Virgil's *Bucolics* and *Georgics*, with some study of the plan and sources of the *Aeneid*. *Hf.* 3 hours. 1st half-year.

17 Gr. Total 17.

39². Mr. C. P. PARKER. — Roman Stoicism in the First Century. — Tacitus (*Annals*), Persius, Seneca, Epictetus. *Hf.* 3 hours. 2d half-year.

3 Gr., 1 Di. Total 4.

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28. Professors A. S. HILL, BRIGGS, and KITTREDGE, Asst. Professor WENDELL, and Messrs. J. G. HART and COTTON. — English. — History and Development of English Literature in outline. *Hf.* 2 hours.

87 Fr., 19 Sp. Total 106.

30. Asst. Professor BAKER and Mr. HAYES. Forensics and Debating. 3 hours.
9 Se., 25 Ju., 2 So., 3 Sp. Total 39.

6. Professor TAUSSIG, Asst. Professors HART, CUMMINGS, and BAKER, and Mr. HAYES. — Oral Discussion of Topics in History and Economics. *Hf.* 2 hours.
1 Gr., 41 Se., 1 Ju., 1 Sp., 1 Law. Total 45.

10. Mr. HAYES. — Elocution. *Hf.* 2 hours.
50 Se., 64 Ju., 20 So., 1 Fr., 8 Sp. Total 143.

- 3¹. Dr. GARRETT. — Anglo-Saxon. — Bright's Anglo-Saxon Reader. *Hf.* 3 hours. 1st half-year.
10 Gr., 8 Se., 5 Ju., 2 So. Total 25.

For Graduates and Undergraduates : —

1. Professor KITTREDGE and Dr. GARRETT. — English Literature. — Chaucer. 3 hours.
11 Gr., 4 Se., 2 Ju., 2 So., 1 Sp. Total 20.

2. Professor KITTREDGE. — English Literature. — Shakspeare (six plays). 3 hours.
15 Gr., 25 Se., 23 Ju., 20 So., 2 Fr., 2 Sp. Total 87.

- 11¹. Dr. GARRETT. — English Literature. — Bacon. *Hf.* 3 hours. 1st half-year.
3 Gr., 9 Se., 7 Ju., 3 So., 1 Sp. Total 23.

- 11². Dr. GARRETT. — English Literature. — Milton. *Hf.* 3 hours. 2d half-year.
2 Gr., 11 Se., 24 Ju., 14 So., 1 Fr., 1 Sp., 1 Sc. Total 54.

- 32¹. Messrs. GARDINER and COTTON. — English Literature of the Elizabethan Period. From Tottell's Miscellany to the Death of Spenser (1557-1599). *Hf.* 2 hours. 1st half-year.
5 Gr., 13 Se., 18 Ju., 26 So., 1 Fr., 3 Sp. Total 66.

- 32². Asst. Professor BAKER and an assistant. — English Literature. — From the Death of Spenser to the Closing of the Theatres (1599-1642). *Hf.* 2 hours. 2d half-year.
13 Gr., 14 Se., 28 Ju., 34 So., 4 Fr., 9 Sp., 1 Di. Total 103.

- 7¹. Messrs. HURLBUT and LA ROSK. — English Literature of the Period of Queen Anne. From the Death of Dryden to the Death of Pope (1700-1744). *Hf.* 2 hours. 1st half-year.
7 Gr., 34 Se., 42 Ju., 34 So., 1 Fr., 5 Sp., 2 Sc., 3 Law. Total 128.

- 7². Mr. COPELAND and an assistant. — English Literature. — From the Death of Pope to the publication of the Lyrical Ballads (1744-1798). *Hf.* 2 hours. 2d half-year.
10 Gr., 45 Se., 64 Ju., 65 So., 8 Fr., 13 Sp., 1 Sc. Total 206.

12. Asst. Professor WENDELL and Mr. CORBIN. — English Composition. 2 hours.
11 Gr., 26 Se., 27 Ju., 6 So., 2 Sp., 2 Sc., 1 Di. Total 75.

Primarily for Graduates : —

- 19². Professor KITTREDGE. — Historical English Grammar. *Hf.* 3 hours. 2d half-year.
2 Gr. Total 2.

16. Mr. GATES. — History and Principles of English Versification. *Hf.* 1 hour.
4 Gr., 1 Se., 1 Ju. Total 6.
- 3^d. Professor KITTREDGE. — Anglo-Saxon Poetry. — *Béowulf.* *Hf.* 3 hours.
2d half-year. 12 Gr., 2 Se., 2 Ju. Total 16.
4. Dr. GARRETT and Dr. F. N. ROBINSON. — Early English. — English Literature from 1200 to 1450. — *Mätzner (Altenglische Sprachproben).* 3 hours.
9 Gr. Total 9.
- 21st. Professor KITTREDGE. — Early English. — The Metrical Romances. — Lectures and theses. *Hf.* 3 hours. 2d half-year. 7 Gr. Total 7.
18. Mr. GATES. — Literary Criticism in England since the Sixteenth Century. *Hf.* 1 hour. 19 Gr., 1 Se. Total 20.
14. Asst. Professor WENDELL. — English Literature. — The Drama from the Miracle Plays to the Closing of the Theatres. *Hf.* 1 hour.
6 Gr., 4 Se., 2 Ju., 1 So., 1 Law. Total 14.
23. Asst. Professor BAKER. — English Literature. — The Works of Shakspeare. *Hf.* 1 hour. 8 Gr., 9 Se. Total 17.
29. Professor A. S. HILL. — The English Novel from Richardson to George Eliot. *Hf.* 1 hour. 7 Gr., 17 Se., 3 Ju., 4 So., 1 Sp. Total 32.
- 24th. Professor A. S. HILL. — The Poetry of Wordsworth, Coleridge, Scott, Byron, Shelley, and Keats. *Hf.* 2 hours. 1st half-year.
16 Gr., 11 Se., 5 Ju., 1 So. Total 33.
5. Professor A. S. HILL. — English Composition (advanced course). 3 hours.
5 Gr., 5 Se., 2 Ju., 2 So., 1 Law. Total 15.

COURSES OF RESEARCH.

20. Mr. GATES. — Special Study. 4 Gr. Total 4.
- 20a. Mr. GATES. — English Literature in its relation to German Literature, from 1790 to 1830. 1 hour. 1 Gr. Total 1.

German.

Primarily for Undergraduates: —

- A. Mr. NICHOLS, Dr. BIERWIRTH, and Messrs. W. G. HOWARD, W. E. WALS and J. A. WALZ. — Elementary Course. — Grammar. — Translation from German into English, and elementary exercises in translating into German. 3 hours.
1 Gr., 2 Se., 2 Ju., 17 So., 142 Fr., 22 Sp., 98 Sc., 1 Law. Total 285.
- B. Dr. POLL. — Elementary Course. — Grammar. — Composition. — Translation and reading at sight. — Selections in Prose and Poetry. 5 hours.
2 So., 12 Fr., 12 Sp. Total 26.
- C. Asst. Professor SCHILLING and Mr. W. G. HOWARD. — Intermediate Course. — Grammar. — Composition. — Translation and reading at sight. — Selections from the Writers of the Eighteenth and Nineteenth Centuries. 3 hours.
6 So., 51 Fr., 3 Sp., 1 Sc. Total 61.

12. Asst. Professor VON JAGEMANN, Associate Professor BARTLETT, and Mr. W. G. HOWARD. — German Prose and Poetry. — Lessing (Minna von Barnhelm). — Schiller (Wilhelm Tell). — Goethe (Egmont). — Lyrics and Ballads. — Modern Historical and Narrative Prose. — Composition. — Reading at sight. 3 hours.

4 Ju., 54 So., 18 Fr., 5 Sp., 3 Sc. Total 84.

13. Associate Professor BARTLETT. — German Prose. — Subjects in History and Biography. — Reading at sight. 3 hours.

1 Ju., 26 So., 5 Fr., 2 Sc., 1 Law. Total 35.

14. Dr. BIERWIRTH. — German Prose. — Subjects in Natural Science. — Reading at sight. 3 hours. 2 Se., 2 Ju., 7 So., 2 Fr., 1 Sp., 58 Sc. Total 67.

- E. Mr. NICHOLS. — German Grammar and practice in writing German (first course). *Hf.* 1 hour. 1 Se., 3 Ju., 7 So., 9 Fr., 1 Sc. Total 21.

- F. Dr. BIERWIRTH. — German Grammar and practice in writing German (second course). *Hf.* 1 hour. 2 Se., 6 Ju., 16 So., 2 Fr. Total 26.

- G. Dr. POLL. — German Grammar and practice in writing German (third course). *Hf.* 1 hour. 2 Gr., 3 Se., 2 Ju., 1 Fr., 1 Sp. Total 9.

2. Dr. POLL. — The German Drama of the Classic Period. — Lessing (Minna von Barnhelm, Emilia Galotti, Nathan der Weise). — Schiller (Maria Stuart, Die Jungfrau von Orleans, Wallensteins Tod.) — Goethe (Iphigenie, Faust.) — Practice in writing German. 3 hours.

1 Gr., 6 Se., 9 Ju., 23 So., 18 Fr., 2 Sc. Total 54.

3. Asst. Professor SCHILLING. — Schiller and his Contemporaries. — Lessing (Emilia Galotti.) — Goethe (Iphigenie, Faust.) — Schiller (Kabale und Liebe, Wallenstein, Maria Stuart, Die Braut von Messina, Die Jungfrau von Orleans.) — Ballads and Lyrics. — Practice in writing German. 3 hours.

1 Gr., 3 Se., 4 Ju., 18 So., 15 Fr., 4 Sp. Total 45.

4. Professor FRANCKE. — Goethe and his Time. — Lessing (Emilia Galotti.) — Schiller (Wallenstein). — Goethe (Götz von Berlichingen, Egmont, Iphigenie, Tasso, Dichtung und Wahrheit, Faust). — Practice in writing German. 3 hours.

5 Se., 18 Ju., 27 So., 9 Fr., 2 Sp. Total 61.

6. Mr. NICHOLS. — German Literature of the Nineteenth Century, with special reference to its prose development. Lectures, reading, and theses. 3 hours.

1 Gr., 6 Se., 3 Ju., 9 So., 1 Fr. Total 20.

7. Dr. BIERWIRTH. — German Philosophical Writers. — Selections from Paulsen (Einleitung in die Philosophie). — Fichte (Bestimmung des Menschen). — Schopenhauer (Welt als Wille und Vorstellung). — Lotze (Mikrokosmos). — DuBois-Reymond (Über die Grenzen des Naturerkennens). — Kant (Kritik der reinen Vernunft.) 3 hours.

1 Gr., 4 Se., 5 Ju., 1 Di. Total 11.

For Graduates and Undergraduates: —

5. Professor FRANCKE. — General History of German Literature; with special reference to the Classic Periods of the Twelfth and Eighteenth Centuries. — Lectures, with collateral reading. 3 hours.

3 Gr., 19 Se., 17 Ju., 5 So., 1 Fr., 2 Sp. Total 47.

8. Asst. Professor SCHILLING. — German Literature in the Twelfth and Thirteenth Centuries. — Nibelungenlied. — Kudrun. — Hartmann's Der arme Heinrich. — Wolfram's Parzival. — Walther von der Vogelweide. — Translation into Modern German. — Lectures and theses. 3 hours.

5 Gr., 3 Se., 3 Ju., 3 So. Total 14.

- 9¹. Asst. Professor FRANCKE. — German Literature and Art from the Fourteenth to the beginning of the Sixteenth Century. — The Volkslied. — The Schwank-literature. — The Miracle Plays. — Painting and Sculpture from the Van Eycks to Dürer. — Luther. — Hans Sachs. — Lectures and reading. *Hf.* 3 hours. 1st half-year.

4 Gr., 4 Se., 3 Ju., 1 So., 1 Law., 1 Me. Total 14.

- 9². Professor FRANCKE. — The social and political tendencies in German Literature from the middle of the Eighteenth to the middle of the Nineteenth Century. — The Age of the French Revolution. — The Age of the Napoleonic Wars. — The Restoration. — Young Germany. — Lectures and theses. *Hf.* 3 hours. 2d half-year.

6 Gr., 4 Se., 1 Ju., 1 So. Total 12.

10. Dr. POLL. — German Literature from the Reformation to the Classic Period of the Eighteenth Century. — Lectures, reading, and theses. *Hf.* 1 hour.

1 Gr., 5 Se., 1 Ju., 6 So. Total 13.

Germanic Philology.

Primarily for Graduates:—

- 13¹. Asst. Professor VON JAGEMANN. — Gothic. Introduction to the study of Germanic Philology. *Hf.* 3 hours. 1st half-year. 9 Gr. Total 9.

- 14². Asst. Professor VON JAGEMANN. — Old Saxon. *Hf.* 2 hours. 2d half-year. 4 Gr. Total 4.

- 15¹. Asst. Professor VON JAGEMANN. — Old High German. *Hf.* 2 hours. 1st half-year. 4 Gr. Total 4.

- 17². Dr. POLL. — Middle Low German. *Hf.* 3 hours. 2d half-year. 3 Gr., 1 Se. Total 4.

THE SEMINARY.

- 20b. Asst. Professor VON JAGEMANN. — Middle High German Section. — The Lyric Poetry (Lachmann, Minnesangs Frühling). 4 Gr. Total 4.

- 20c. Professor FRANCKE. — Modern German Section. — Interpretation of the the Second Part of Goethe's Faust. 3 Gr. Total 3.

French

Primarily for Undergraduates:—

- A. Messrs. C. H. C. WRIGHT and LA MESLÉE. — Elementary Course. — French Prose and Composition. 3 hours.

4 Gr., 3 Se., 1 Ju., 6 So., 34 Fr., 24 Sp., 26 Sc., 1 Di. Total 99.

- 1b. Messrs. BABBITT and FORD. — French Prose. — Historical and General. — Translation from French into English. 3 hours.

1 Gr., 1 Se., 5 Ju., 25 So., 41 Fr., 4 Sp., 24 Sc., 1 Di. Total 102.

- 1c. Mr. LA MESLÉE. — Reading, translation, grammar, and composition. 3 hours. 1 Gr., 2 Se., 1 Ju., 3 So., 19 Fr., 6 Sp., 1 Sc. Total 33.
- 1a. Asst. Professor DE SUMICHEAST, and Mr. I. BABBITT. — Reading, translation, grammar, and composition. 3 hours. 2 Ju., 21 So., 41 Fr., 7 Sp., 2 Sc. Total 73.
- 2c. Dr. MARCOU and Mr. FORD. — French Prose and Poetry. — Corneille. — Racine. — Molière. — Beaumarchais. — Alfred de Musset. — Balzac. — Composition. 3 hours. 4 Se., 11 Ju., 53 So., 59 Fr., 8 Sp., 1 Sc. Total 136.
- 2a. Messrs. WRIGHT and BABBITT. — French Prose and Poetry. — La Fontaine. — Corneille. — Racine. — Molière. — Victor Hugo. — George Sand. — Taine. — Renan. — Composition. 3 hours. 1 Gr., 4 Se., 6 Ju., 27 So., 56 Fr., 3 Sp., 1 Sc. Total 98.
3. Messrs. BRUN and LA MESLÉE. — Practice in speaking and writing French (elementary course). *Hf.* 2 hours. 3 Se., 11 Ju., 20 So., 24 Fr., 5 Sp. Total 63.
4. Mr. BRUN. — Practice in speaking and writing French (intermediate course). *Hf.* 2 hours. 1 Gr., 4 Se., 19 Ju., 23 So., 10 Fr., 3 Sp. Total 60.
5. Mr. BRUN. — Practice in speaking and writing French (advanced course). — Oral discussions. *Hf.* 2 hours. 2 Gr., 3 Se., 5 Ju., 1 So., 1 Fr., 2 Sp. Total 14.

For Graduates and Undergraduates: —

- 6a. Professor GRANDGENT. — General view of French Literature. — Reading, recitations, lectures, composition. 3 hours. 2 Gr., 11 Se., 10 Ju., 17 So., 5 Fr., 1 Sp. Total 46.
6. Asst. Professor DE SUMICHEAST. — General view of French Literature, from its origins to the present day. — Lectures, reading, themes, and collateral reading. 3 hours. 5 Se., 17 Ju., 20 So., 2 Fr., 1 Sp. Total 45.
14. Dr. MARCOU. — French Lyric Poetry from Villon and the Fifteenth Century to the present time. — Lectures, reading of texts, and theses. 3 hours. 1 Gr., 2 Se., 1 Ju., 1 So. Total 5.
- 8¹. Asst. Professor DE SUMICHEAST. — Voltaire and his contemporaries. — Lectures, reading, themes, and collateral reading. *Hf.* 3 hours. 1st half-year. 5 Gr., 18 Se., 12 Ju., 2 Sc., 1 Sp., 1 Law. Total 39.
- 8². Asst. Professor DE SUMICHEAST. — The Drama in the Eighteenth Century. — Lectures, reading, themes, and collateral reading. *Hf.* 3 hours. 2d half-year. 2 Gr., 11 Se., 9 Ju., 3 So. Total 25.
10. Professor F. BÖCHER. — French Literature in the Sixteenth Century. — Lectures, themes, and collateral reading. 3 hours. 1 Gr., 10 Se., 4 Ju., 1 So., 1 Fr., 1 Sp. Total 18.

Primarily for Graduates: —

11. Professor SHELTON. — Old French Literature. — Rapid reading of texts with consideration of their literary relations. 3 hours. 4 Gr. Total 4.
15. Professor F. BÖCHER. — French Comedy in the Sixteenth and Seventeenth Centuries. 3 hours. 2 Gr., 14 Se., 1 Ju. Total 17.

COURSES OF RESEARCH.

20. Asst. Professor DE SUMICHRAST. — Advanced Study. 1 Gr. Total 1.

20b. Professor F. BÖCHER. — The Essays of Montaigne and their influence on later thought. 2 hours. 1 Gr. Total 1.

Italian.

Primarily for Undergraduates: —

1. Professor SHELDON and Mr. FORD. — Elements of Grammar. — Selections from modern authors. — Elementary exercises in writing Italian. 3 hours.
12 Se., 11 Ju., 6 So., 11 Fr., 3 Sp., 1 Law. Total 44.

For Graduates and Undergraduates: —

2. Asst. Professor MARSH. — Literature of the Fifteenth and Sixteenth Centuries. — Torquato Tasso. — Ariosto. — Machiavelli. — Castiglione. — Reading at sight. — Syntax and Prose Composition. 3 hours.
2 Se., 3 Ju., 6 So., 1 Fr., 1 Sp. Total 18.

Primarily for Graduates: —

3. Professor GRANDGENT. — Literature of the Thirteenth and Fourteenth Centuries. — Selections from Boccaccio, Petrarca, Dante. — Early Italian. — Monaci's *Crestomazia Italiana dei primi secoli*.
3 Gr., 1 Se., 1 So. Total 5.
4. Professor NORTON. — Literature and the Fine Arts in Italy during the Middle Ages and the Renaissance, with special study of Dante. 2 hours.
2 Gr., 7 Se., 3 Ju., 1 So. Total 18.

Spanish.

Primarily for Undergraduates: —

1. Mr. ERHARDT. — Grammar, reading, and composition. — Modern novels and plays. 3 hours. 13 Se., 15 Ju., 16 So., 8 Fr., 3 Sp., 1 Sc. Total 56.

For Graduates and Undergraduates: —

2. Dr. MARCOU. — Literature of the Sixteenth and Seventeenth Centuries. — Cervantes, Lope de Vega, Calderón. — Composition. 3 hours.
3 Gr., 9 Se., 5 Ju., 1 So., 1 Sp. Total 19.

Romance Philology.

Primarily for Graduates: —

3. Professor SHELDON. — Old French. — Phonology and Inflections. — The oldest texts. — La Chanson de Roland. — Chrétien de Troyes. Aucassin et Nicolette. 2 hours. 12 Gr., 2 Se. Total 14.
4. Professor GRANDGENT — Provençal. — Language and Literature, with selections from the poetry of the Troubadours. 3 hours.
4 Gr., 2 Se. Total 6.
6. Professor SHELDON. — Old French Dialects, with special reference to Anglo-Norman. 2 hours. 1 Gr. Total 1.
- 2^d. Professor GRANDGENT and Asst. Professor VON JAGEMANN. — General Introduction to Linguistic Science. — Phonetics. — Lectures on the Principles of Change in Language. *Hf.* 3 hours. 2d half-year.
7 Gr., 3 Se. Total 10.

COURSE OF RESEARCH.

20. Professor SHELDON. — Investigation of special subjects. 1 Gr. Total 1.

Comparative Literature.

For Graduates and Undergraduates:—

2. Asst. Professor MARSH. — Mediæval Literature in the vulgar tongues, with especial reference to the influence of France and Provence. — Lectures and theses. 3 hours. 4 Gr., 1 Se., 1 Sp. Total 6.

Primarily for Graduates:—

1. Asst. Professor MARSH. — The History of Latin Literature in the Middle Ages (beginning with the Fourth Century), and its relations to Classic and Modern Literature. — Lectures and theses. 3 hours. 3 Gr. Total 3.
- 22^d. Asst. Professor MARSH. — The Legendary and Poetic material of Celtic origin and its treatment in the Narrative Poetry of the Middle Ages. *Hf.* 3 hours. 2d half-year. 6 Gr. Total 6.

Celtic.

Primarily for Graduates:—

- 1st. Dr. F. N. ROBINSON. — Old Irish. — Grammar and interpretation of texts. — General introduction to Celtic Philology. *Hf.* 3 hours. 2d half-year. 3 Gr. Total 3.

Slavic Languages.

For Graduates and Undergraduates:—

1. Mr. WIENER. — Russian. — Grammar, reading, and composition. 3 hours. 3 Gr., 2 Se. Total 5.
2. Mr. WIENER. — Polish. — Grammar, reading, and composition. 3 hours. 1 Ju. Total 1.
- 3^d. Mr. WIENER. — Old Church Slavic. — Leskien, *Handbuch der althulgarischen Sprache.* *Hf.* 3 hours. 1st half-year. 2 Gr. Total 2.

History.

Primarily for Undergraduates:—

1. Dr. COOLIDGE, assisted by Messrs. NICHOLSON, FAY, and J. P. WARREN. — Mediæval and Modern European History (introductory course). 3 hours. 1 Gr., 1 Se., 1 Ju., 66 So., 286 Fr., 49 Sp., 1 Sc. Total 405.

For Graduates and Undergraduates:—

3. Dr. BOTSFORD. — Political History of Rome to the Reign of Diocletian. 3 hours. 2 Gr., 6 Se., 6 Ju., 5 So., 1 Fr. Total 20.
6. Asst. Professor PLATNER. — History of the Early Church, with special reference to the Patristic Literature. 2 hours. 2 Se., 1 Sp., 1 Di. Total 4.
7. Professor EMERTON. — The Era of the Reformation in Europe from the rise of Italian Humanism to the close of the Council of Trent (1350-1568). 2 hours. 11 Gr., 16 Se., 7 Ju., 4 So., 3 Di. Total 41.
8. Asst. Professor GROSS. — History of France to the reign of Francis I. 2 hours. 4 Gr., 10 Se., 10 Ju., 5 So., 2 Sp. Total 31.
9. Asst. Professor GROSS. — Constitutional History of England to the Sixteenth Century. 3 hours. 9 Gr., 22 Se., 10 Ju., 9 So., 1 Fr., 4 Sp. Total 55.

11. Mr. OZANNE. — History of England during the Tudor and Stuart Periods. 3 hours. 1 Gr., 10 Se., 8 Ju., 4 So., 1 Sp. Total 23.
- 12¹. Professor MACVANE assisted by Mr. FAIRLIE. — Constitutional History of England since the reign of George II. *Hf.* 3 hours. 1st half-year. 5 Gr., 26 Se., 33 Ju., 33 So., 1 Fr., 7 Sp., 2 Law. Total 110.
- 12². Professor MACVANE assisted by Mr. FAIRLIE. — History of Continental Europe since the Middle of the Eighteenth Century. *Hf.* 3 hours. 2d half-year. 4 Gr., 40 Se., 63 Ju., 100 So., 10 Fr., 19 Sp. Total 236.
- 19¹. Dr. COOLIDGE. — The Eastern Question. *Hf.* 3 hours. 1st half-year. 1 Gr., 25 Se., 17 Ju., 5 So., 3 Sp., 3 Law. Total 54.
10. Mr. DUNWAT, assisted by Mr. CROSS. — American History (to 1788). 3 hours. 2 Gr., 10 Se., 31 Ju., 98 So., 8 Fr., 8 Sp. Total 157.
13. Asst. Professor HART. — Constitutional and Political History of the United States (1783–1865). 3 hours. 5 Gr., 76 Se., 99 Ju., 40 So., 1 Fr., 8 Sp., 2 Sc., 1 Law. Total 332.

Primarily for Graduates: —

17. Dr. BOTSFORD. — Constitutional History of Athens. 2 hours. 4 Gr., 1 Se. Total 5.
22. Asst. Professor GROSS. — The Sources and Literature of English Constitutional History. 1 hour. 6 Gr. Total 6.

SEMINARY COURSES.

- 20a. Professor EMERTON. — Church and State. 2 Gr., 2 Di. Total 4.
- 20b. Asst. Professor GROSS. — English Institutions in the Middle Ages. 1 Gr. Total 1.
- 20c. Professor MACVANE. — Recent Constitutional History. 1 hour. 2 Gr., 2 Se. Total 4.
- 20e. Asst. Professors HART and BEALE. — American History and Institutions. 16 Gr., 2 Se., 1 Law. Total 19.

Government.

Primarily for Undergraduates: —

- 1¹. Professor MACVANE. — Constitutional Government (elementary course). *Hf.* 3 hours. 1st half-year. 35 Ju., 127 So., 149 Fr., 37 Sp., 2 Sc., 2 Law. Total 352.

For Graduates and Undergraduates: —

4. Asst. Professor BEALE, assisted by Mr. BIGELOW. — Elements of International Law. 3 hours. 4 Gr., 37 Se., 12 Ju., 4 So., 3 Sp., 4 Law. Total 64.
5. Mr. F. B. WILLIAMS. — History and Institutes of Roman Law. — Institutes of Justinian, except the Law of Inheritance. — Selections from the Institutes of Gaius. 3 hours. 10 Se., 5 Ju., 1 So., 1 Sp. Total 17.
- 7². Professor MACVANE, assisted by Mr. SEAMAN. — Leading Principles of Constitutional Law: selected cases, American and English. *Hf.* 3 hours. 2d half-year. 6 Gr., 19 Se., 15 Ju., 20 So., 4 Fr., 7 Sp., 1 Law. Total 72.

8². Professor EMERTON. — Selected Topics from the Canon Law, with reference also to the principles of Protestant Church Law. *Hf.* 2 hours. 2d half-year. 1 Ju., 1 Di. Total 2.

13. Mr. F. B. WILLIAMS. — The History of European Law. — Early Germanic Law. — Frankish Reforms. — Mediaeval French and German Law. — Revival of the Roman Law. — Modern Codes. 3 hours.
4 Se., 3 Ju., 2 Law. Total 9.

Primarily for Graduates: —

10. Professor MACVANE. — Principles of Government: Selections from leading Writers, together with studies in existing Political Systems. 2 hours.
11 Gr., 1 Se., 1 Ju., 1 So. Total 14.

12. Asst. Professor HART. — Government and Political Methods in the United States, national, State, and municipal. 3 hours.
9 Gr., 12 Se., 1 Ju. Total 22.

Economics.

Primarily for Undergraduates: —

1. Professors TAUSSIG and ASHLEY, Asst. Professor EDWARD CUMMINGS, and Dr. JOHN CUMMINGS. — Outlines of Economics. — Principles of Political Economy. — Lectures on Economic Development, Social Questions, and Financial Legislation. 3 hours.
1 Gr., 40 Se., 131 Ju., 235 So., 12 Fr., 24 Sp., 20 Sc., 1 Law. Total 464.

For Graduates and Undergraduates: —

11. Professor ASHLEY. — The Modern Economic History of Europe and America (from 1800). 2 hours.
16 Gr., 6 Se., 1 Ju., 1 So., 1 Sp., 4 Law. Total 29.

15. Professor ASHLEY. — The History and Literature of Economics to the Middle of the Nineteenth Century. 2 hours. 10 Gr., 2 Se., 2 Ju. Total 14.

2. Professor TAUSSIG. — Economic Theory from the Middle of the Nineteenth Century to the Present Time. — English Writers. — The Austrian School. 3 hours.
12 Gr., 12 Se., 18 Ju., 2 So., 3 Sp. Total 42.

3. Asst. Professor EDWARD CUMMINGS. — The Principles of Sociology. — Development of the Modern State, and of its Social Functions. 2 hours.
6 Gr., 23 Se., 18 Ju., 2 So., 2 Sp., 1 Law. Total 47.

14. Asst. Professor EDWARD CUMMINGS. — Communism and Socialism. — History and Literature. 2 hours. 10 Se., 2 Ju., 1 Sp. Total 13.

9. Asst. Professor EDWARD CUMMINGS and Dr. JOHN CUMMINGS. — The Labor Question in Europe and the United States. — The Social and Economic Condition of Workingmen. 3 hours.
5 Gr., 9 Se., 27 Ju., 7 So., 2 Sp. Total 50.

4. Dr. JOHN CUMMINGS. — Theory and Methods of Statistics. — Applications to Economic and Social Questions. — Studies in the Movement of Population. 3 hours. 8 Se., 7 Ju. Total 15.

5. Mr. VIERUX. — Railway Transportation. — Lectures and written work. *Hf.* 3 hours. 1st half-year.
2 Gr., 33 Se., 20 Ju., 5 So., 1 Sp., 1 Law. Total 62.

- 6¹. Professor TAUSSIG. — History of Tariff Legislation in the United States. *Hf.* 2 hours. 1st half-year.

7 Gr., 39 Se., 20 Ju., 3 So., 3 Sp., 2 Law. Total 74.

- 16². Professor DUNBAR. — Selected Topics in the Financial History of the United States. *Hf.* 2 hours. 2d half-year.

11 Gr., 6 Se., 4 Ju. Total 21.

- 7². Professor TAUSSIG. — The Theory and Methods of Taxation, with special reference to Local Taxation in the United States. *Hf.* 3 hours. 2d half-year. 6 Gr., 17 Se., 18 Ju., 5 So., 2 Sp., 2 Law, 1 Me. Total 51.

- 12¹. Professor DUNBAR. — Banking and the History of the leading Banking Systems. *Hf.* 3 hours. 1st half-year.

1 Gr., 18 Se., 24 Ju., 2 Sp., 2 Law. Total 47.

- 12². Professor DUNBAR and Mr. MEYER. — International Payments and the Flow of the Precious Metals. *Hf.* 3 hours. 2d half-year.

9 Gr., 2 Se., 6 Ju., 1 Sp., 1 Law, 1 Me. Total 20.

Primarily for Graduates: —

20. Professors DUNBAR, TAUSSIG and ASHLEY, and Asst. Professor EDWARD CUMMINGS. — Seminary in Economics. 17 Gr., 2 Se., 1 Law. Total 20.

Philosophy.

Primarily for Undergraduates: —

1. Professors PALMER, JAMES, and RORCE, assisted by Dr. RAND. — General Introduction to Philosophy. — Logic. — Psychology. — History of Philosophy. 3 hours; 1st half-year. 6 hours; 2d half-year.

2 Gr., 64 Se., 130 Ju., 98 So., 7 Fr., 22 Sp., 12 Sc., 2 Law, 1 Me. Total 336.

For Graduates and Undergraduates: —

- 2¹. Professor DELABARRE (of Brown University), Dr. DEARBORN, and Mr. LOUGH. — Experimental Psychology. — Lectures, laboratory exercises, and special topics treated in conferences and theses. *Hf.* 6 hours. 1st half-year.

1 Gr., 9 Se., 1 Ju., 1 Sp., 2 Sc. Total 14.

3. Professor JAMES. — Philosophy of Nature. — A study of the fundamental conceptions of Natural Science, with special reference to theories of Evolution and Materialism. — Lectures and theses. 3 hours.

7 Gr., 16 Se., 6 Ju., 3 Sp., 1 Sc., 1 Di. Total 34.

4. Professor PALMER. — Ethics. — The Theory of Morals, considered constructively. — Lectures, theses, and private reading. 3 hours.

5 Gr., 84 Se., 9 Ju., 5 So., 5 Sp., 1 Sc., 7 Di., 1 Me. Total 67.

5. Professor PEABODY. — The Ethics of the Social Questions. — The problems of Poor-Relief, the Family, Temperance, and various phases of the Labor Question in the light of ethical theory. — Lectures, special researches, and required reading. 3 hours.

1 Gr., 31 Se., 10 Ju., 3 So., 2 Sp., 9 Di. Total 56.

6. Professor EVERETT. — Philosophy of Religion. — Lectures. *Hf.* 1 hour.

1 Gr., 4 Se., 2 Ju., 1 So., 1 Sp., 1 Di. Total 10.

7. Professor EVERETT. — The Content of Christian Faith. — Lectures and a thesis. 3 hours.

1 Gr., 1 Ju., 1 Sp., 8 Di. Total 11.

8. Professor ROYCE. — Logic (advanced course). — The General Theory of the Thinking Process. — Elements of Symbolic Logic. — The Doctrine of the Inductive Methods. — Lectures and Theses. 3 hours.
9 Gr., 2 Se., 2 Sp., 1 Di. Total 14.
9. Professor ROYCE. — Metaphysics. — The fundamental problems of Theoretical Philosophy, considered constructively. — The Problem of Knowledge. — Realism and Idealism. — The Problems of Causation, Freedom, Teleology, and Theism. — Theses. 3 hours.
6 Gr., 10 Se., 2 Ju., 1 So., 1 Sc., 6 Di. Total 26.
12. Dr. BAKWELL. — The History of Ancient Philosophy from Thales to Aristotle. — Lectures, theses, and private reading. 3 hours.
4 Gr., 7 Se., 1 Ju., 1 Sp. Total 13.
11. Dr. BAKWELL. — The History of English Philosophy from Hobbes to Hume. — Lectures, private reading, and theses. 3 hours.
4 Gr., 1 Ju., 1 So. Total 6.
13. Professor EVERETT. — The Comparative Study of Religion. — Studies in the Comparative History of Religions, particularly the Vedic Religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese Religions. *Hf.* 2 hours.
1 Gr., 4 Se., 1 Ju., 9 Di. Total 15.

Primarily for Graduates : —

- 15¹. Professor JAMES. — Abnormal Psychology. — A study of the various types of insanity, and of recent investigations into exceptional mental phenomena. — Lectures and special reports. *Hf.* 3 hours. 1st half-year.
3 Gr., 8 Se. Total 11.
- 20a. Professor DELABARRE (of Brown University) and Mr. LOUGH. — Psychological Laboratory. — Laboratory exercises and special investigations for advanced students.
7 Gr., 4 Se. Total 11.
- 20b. Professor ROYCE — Psychological Seminary. — Subject for the year: The Philosophical Problems of Psychology: — The Relations of Mind and Body; the Nature of Consciousness, of the Self, etc.; the Methods of Psychological Study critically discussed. 2 hours.
10 Gr., 2 Se., 1 Me. Total 13.
- 20c. Professor JAMES. — Metaphysical Seminary. — Subject for the year: The Philosophy of Kant. — A study of the three Critiques. 2 hours.
5 Gr., 2 Se., 1 Ju., 1 Di. Total 9.
- 20d. Professor PALMER. — Ethical Seminary. — Subject for the year: The Comparison of Ethical Ideals, with an examination of the three methods marked out in Sidgwick's *Methods of Ethics*. 2 hours.
6 Gr., 1 Se., 1 Di. Total 8.
- 20e. Professor PEABODY. — Sociological Seminary. — Subject for the year: The Christian Doctrine of the Social Order. 2 hours.
1 Se., 6 Di. Total 7.

COURSES IN EDUCATION AND TEACHING.

For Graduates and Undergraduates : —

16. Asst. Professor HANUS. — The History of Educational Theories and Practices. — Lectures, discussions, and reports. — Two essays. 2 hours.
5 Gr., 3 Se., 3 Ju., 3 Sp., 2 Sc. Total 16.

18. Asst. Professor HANUS. — Introduction to Educational Theory. — Discussion of Educational Principles. — Lectures, reports, and discussions. — One essay. *Hf.* 1 hour.

15 Gr., 12 Se., 2 Ju., 1 Fr., 1 Sp., 3 Sc., 1 Law, 1 Me. Total 36.

- 19b. Asst. Professor HANUS. — Methods of Teaching Latin, Greek, English, German, French, History, in Elementary and Secondary Schools. About ten exercises in each subject. One thesis on the work of the whole course. *Hf.* 2 hours.

2 Gr., 3 Se., 1 Ju. Total 6.

Primarily for Graduates : —

17. Asst. Professor HANUS. — Organization and Management of Public Schools and Academies. — Supervision, Courses of Study, and Instruction. — Lectures, discussions, and reports. 2 hours.

10 Gr., 6 Se., 4 Sc., 1 Law. Total 21.

- 20g. Asst. Professor HANUS. — Pedagogical Seminary. — Subject for the year: Aims, Organization, Equipment, and Methods of Education, more particularly of Secondary Education. — Lectures, essays, reports, and discussions. 1 hour.

10 Gr., 1 Sc. Total 11.

The Fine Arts.

Primarily for Undergraduates : —

1. Professor MOORE. — Principles of Delineation, Color, and Chiaroscuro. — Lectures (once a week), with collateral reading. — Practice in drawing and in the use of water-colors. — Perspective. 8 hours.

1 Gr., 1 Se., 3 Ju., 1 So., 18 Fr., 5 Sp., 30 Sc. Total 59.

2. Professor MOORE. — Principles of Design in Architecture, Sculpture, and Painting. — Lectures (twice a week), with collateral reading. — Practice in drawing and water-colors. 8 hours.

4 So., 1 Sc., 1 Law. Total 6.

For Graduates and Undergraduates : —

4. Professor NORTON. — Roman and Mediaeval Art. 3 hours.

10 Gr., 89 Se., 167 Ju., 126 So., 9 Fr., 18 Sp., 24 Sc., 3 Law. Total 445.

Architecture.

The courses in Architecture are intended primarily for students in the Lawrence Scientific School, and only Course 1a may be counted towards the degree of A.B. In the courses in design, students are expected to give all the time they can to the work. The drawing room is constantly open, and an instructor is usually present.

- 1a. Asst. Professor WARREN. — Technical and Historical Development of the Ancient Styles, with especial reference to Classic Architecture. Lectures and practice in the drawing room. 2 hours.

2 Gr., 3 Se., 1 Ju., 1 So., 15 Sc. Total 23.

- 1b. Asst. Professor WARREN. — Technical and Historical Development of the Mediaeval Styles. — Lectures and practice in the drawing room. 2 hours.

1 Gr., 27 Sc. Total 28.

- 2a. Asst. Professor WARREN, and Messrs. NEWTON and FOX. — Elementary Architectural Drawing. 4 hours.

1 Gr., 1 Ju., 13 Sc. Total 15.

- 3a. Asst. Professor WARREN and Mr. NEWTON. — Freehand Drawing from Architectural Subjects. 6 hours. 2 Gr., 11 Sc. Total 13.
- 3b. Asst. Professor WARREN and Mr. NEWTON. — Freehand Drawing from Architectural Subjects (second course). 6 hours. 15 Sc. Total 15.
- 3c. Asst. Professor WARREN and Mr. NEWTON. — Freehand Drawing from Architectural Subjects (third course). 6 hours. 1 Sp., 1 Sc. Total 2.
- 4a. Asst. Professor WARREN and Mr. NEWTON. — Elementary Architectural Design. Lectures and practice. 4 hours. 13 Sc. Total 13.
- 4b. Asst. Professor WARREN and Mr. NEWTON. — Architectural Design (second course). 4 hours. 16 Sc. Total 16.
- 4c. Asst. Professor WARREN and Mr. NEWTON. — Architectural Design (advanced course). 3 hours. 1 Sp. Total 1.
- 4d. Asst. Professor WARREN and Mr. NEWTON. — Special Work. 1 Gr. Total 1.

Music.*For Graduates and Undergraduates : —*

1. Mr. SPALDING. — Harmony. 3 hours and a half. 3 Se., 5 Ju., 6 So., 11 Fr., 2 Sp. Total 27.
2. Professor PAINE. — Counterpoint. 2 hours. 1 Ju., 7 So., 2 Fr. Total 10.
7. Professor PAINE. — Instrumentation. *Hf.* 1 hour. 2 Se., 4 Ju., 2 So. Total 8.

Primarily for Graduates : —

5. Professor PAINE. — Canon and Fugue. — Free Thematic Music. 2 hours. 3 Ju. Total 3.
6. Professor PAINE. — Advanced Canon and Fugue and Free Composition. 2 hours. 2 Se., 1 So. Total 3.

Mathematics.*Primarily for Undergraduates : —*

- A¹. Messrs. SAFFORD and ASHTON. — Logarithms. — Plane and Spherical Trigonometry. *Hf.* 3 hours. 1st half-year. 3 Se., 1 Ju., 7 So., 19 Fr., 5 Sp., 3 Sc. Total 38.
- B². Mr. ASHTON. — Plane Analytic Geometry (elementary course). *Hf.* 3 hours. 2d half-year. 1 Ju., 13 Fr., 2 Sp., 4 Sc. Total 20.
- C. Mr. HUNTINGTON. — Plane and Solid Analytic Geometry (extended course). 3 hours. 1 Gr., 1 Ju., 5 So., 10 Fr., 2 Sc. Total 19.
- D¹. Mr. SAFFORD. — Algebra. *Hf.* 3 hours. 1st half-year. 1 Se., 4 Ju., 8 So., 18 Fr., 4 Sp., 4 Sc. Total 39.
- E². Messrs. ASHTON and SAFFORD. — Solid Geometry. *Hf.* 3 hours. 2d half-year. 1 Gr., 5 Se., 5 Ju., 9 So., 24 Fr., 11 Sp., 14 Sc. Total 69.
- F. Messrs. ASHTON and SAFFORD. — Trigonometry and Plane Analytic Geometry. 3 hours. 1 Ju., 8 So., 46 Fr., 4 Sp., 4 Sc. Total 63.
2. Asst. Professor OSGOOD. — Differential and Integral Calculus (first course). 3 hours. 1 Gr., 2 Se., 6 Ju., 25 So., 3 Fr., 2 Sp., 2 Sc. Total 41.
4. Asst. Professor OSGOOD. — The Elements of Mechanics. 3 hours. 1 Gr., 4 Se., 5 Ju., 2 So., 1 Sc. Total 13.

For Graduates and Undergraduates : —

- 1st. Asst. Professor M. BÖCHER. — Theory of Equations. — Invariants. *Hf.* 8 hours. 2d half-year. 4 Gr., 3 Se., 1 Ju., 2 So., 1 Sp. Total 11.
3. Professor BYERLY. — Modern Methods in Geometry. — Determinants. 8 hours. 2 Gr., 1 Se., 6 So., 1 Sp., 1 Sc. Total 11.
5. Professor BYERLY. — Differential and Integral Calculus (second course). 8 hours. 3 Gr., 3 Se., 5 Ju., 1 Sc. Total 15.
8. Professor BYERLY and Mr. WHITTEMORE. — Analytic Mechanics. 8 hours. 2 Gr., 2 Se., 1 So. Total 5.
24. Asst. Professor M. BÖCHER. — Theory of Numbers. *Hf.* 1 hour. 8 Gr., 1 Se., 1 So. Total 10.
- 12th. Asst. Professor OSGOOD. — Infinite Series and Products. *Hf.* 8 hours. 1st half-year. 9 Gr., 2 Se., 2 Ju. Total 13.

Primarily for Graduates : —

- 7a. Professor J. M. PEIRCE. — The General Theory of Curves and Surfaces (first course): Algebraic Plane Curves, especially Curves of the Third Degree in point or line coördinates. 8 hours. 7 Gr., 1 Se., 1 So., 1 Sc. Total 10.
10. Professors BYERLY and B. O. PEIRCE. — Trigonometric Series. — Introduction to Spherical Harmonics. — Potential Function. 8 hours. 14 Gr., 5 Se., 1 Ju. Total 20.
18. Asst. Professor M. BÖCHER. — The Theory of Functions (introductory course). 8 hours. 6 Gr., 3 Se. Total 9.
16. Professor BYERLY. — Problems in the Mechanics of Rigid Bodies. *Hf.* 2 hours. 2 Gr. Total 2.
17. Asst. Professor OSGOOD. — The Theory of Functions (second course). — Elliptic Functions. 8 hours. 7 Gr. Total 7.
19. Asst. Professor M. BÖCHER. — Bessel's Functions. *Hf.* 1 hour. 5 Gr. Total 5.
22. Professor B. O. PEIRCE. — The Theory of Surfaces. *Hf.* 6 Gr., 1 Se., 1 Ju. Total 8.
25. Professor ASAPE HALL (U. S. Navy). — Celestial Mechanics. 8 hours. 4 Gr., 2 Se. Total 6.

COURSE OF READING AND RESEARCH.

20. Asst. Professor M. BÖCHER. — Special work. 3 Gr. Total 3.

Engineering.

The courses in Engineering are intended primarily for students in the Lawrence Scientific School, and only a few of them can ordinarily be counted towards the degree of A.B. The Catalogue shows in detail what courses may be so counted.

- 1a. Messrs. LOVE and ASHTON. — Engineering Mathematics. — Algebra. *Hf.* 8 hours. 1st half-year. 1 Se., 1 Ju., 1 So., 2 Fr., 101 Sc. Total 106.
- 1b. Messrs. LOVE and ASHTON. — Engineering Mathematics. — Trigonometry. *Hf.* 2 hours. 1st half-year. 2 Se., 3 Ju., 4 So., 98 Sc. Total 102.

- 1d. Messrs. LOVE and ASHTON. — Engineering Mathematics. — Analytic Geometry. *Hf.* 3 hours. 2d half-year.
1 Se., 2 So., 2 Fr., 73 Sc. Total 78.
- 1e. Mr. LOVE. — Engineering Mathematics. — Solid Analytic Geometry. — Differential and Integral Calculus. 3 hours.
3 Se., 1 So., 47 Sc. Total 51.
- 1f. Mr. LOVE. — Engineering Mathematics. — Differential and Integral Calculus (second course). *Hf.* 3 hours. 1st half-year.
1 Gr., 8 Sc. Total 9.
- 2a¹. Dr. WILLSON. — Descriptive Astronomy. *Hf.* 3 hours. 1st half-year
13 Se., 3 Ju., 14 So. Total 35.
- 2a². Dr. WILLSON. — Practical Astronomy. — Use of instruments and applications to Navigation and Surveying. *Hf.* 3 hours. 2d half-year.
3 Se., 1 So., 1 Fr., 13 Sc. Total 18.
- 3a. Messrs. MOSES and TILDEN. — Mechanical Drawing. — Descriptive Geometry. — Tinting, Isometric Drawing, Shades and Shadows, Perspective. 7 hours.
1 Se., 2 Ju., 1 So., 5 Fr., 81 Sc. Total 90.
- 3a¹. Mr. MOSES. — Structural and Machine Drawing. — Applications of Descriptive Geometry to Engineering Constructions and Machinery. *Hf.* 7 hours. 1st half-year.
2 Se., 39 Sc. Total 41.
- 3a². Mr. MOSES. — Mechanism. — Study of gearing and mechanical movements. *Hf.* 6 hours. 2d half-year.
27 Sc. Total 27.
- 4a. Messrs. TURNER and HOPKINS. — Surveying, Plotting, and Topographical Drawing. — Levelling. — Field practice. 6 hours.
1 Gr., 1 Se., 2 Ju., 20 Sc. Total 24.
- 4a¹. Messrs. TURNER and HOPKINS. — Geodetic, Mining, and Hydrographic Surveying. — Field practice. *Hf.* 6 hours. 2d half-year.
3 Se., 13 Sc. Total 16.
- 4a². Mr. TURNER. — Railroad Engineering. — Survey, Location, and Construction of Railroads. — Field practice. *Hf.* 6 hours. 1st half-year.
3 Se., 10 Sc. Total 13.
- 10a. Mr. BURKE. — Shopwork in Metals. — Use of tools. — Fitting by hand. — Study of the metals in practical working. — Lectures and laboratory work. *Hf.* 6 hours. 1st or 2d half-year. 1 Ju., 1 Fr., 40 Sc. Total 42.
- 10b. Mr. BURKE. — Blacksmithing. — Use of tools. — Forging, welding, tool dressing and tempering. — Lectures and laboratory work. *Hf.* 6 hours. 1st or 2d half-year.
1 Ju., 1 Fr., 38 Sc. Total 40.
- 10c. Mr. BURKE. — Shopwork in Wood. — Use of tools. — Pattern-making and turning. — Lectures and laboratory work. *Hf.* 6 hours. 1st or 2d half-year.
25 Sc. Total 25.
- 10d. Mr. BURKE. — Foundry Practice. — Moulding. — Casting in iron and alloys. — Mixing metals. — Lectures and laboratory work. *Hf.* 6 hours. 1st or 2d half-year.
25 Sc. Total 25.

- 10c. Mr. BURKE. — Machine Shop Practice. — Use of machine tools. — Construction of parts of machinery; finishing and assembling parts. — Lectures and laboratory work. *Hf.* 6 to 9 hours. 1st or 2d half-year.

23 Sc. Total 23.

For Graduates and Undergraduates: —

- 2c. Dr. WILLSON. — Practical Astronomy. — Determination of time, latitude, and longitude. — Use of the sextant and astronomical transit. — Lectures, instrumental work, and computation. 3 hours.

3 Gr., 1 So., 1 Fr., 1 Sp. Total 6.

- 4c². Mr. MCCLINTOCK. — Construction and Maintenance of Common Roads. *Hf.* 3 hours. 2d half-year.

5 Sc. Total 5.

- 5a. Professor HOLLIS and Asst. Professor JOHNSON. — Analytic and Applied Mechanics. — Problems in Statics and Kinetics. 3 hours.

2 Gr., 2 Se., 38 Sc. Total 32

- 5c¹. Professor HOLLIS. — Resistance of Materials. — Testing materials used for structural purposes. *Hf.* 6 hours. 1st half-year. 1 Se., 2 Sc. Total 3.

- 6a². Messrs. TURNER and HOPKINS. — Hydraulics and Hydraulic Motors. — Flow of water in pipes. — Water wheels, turbines, and pressure engines. *Hf.* 3 hours. 2d half-year.

3 Se., 30 Sc. Total 33.

- 6c². Mr. RICE. — Water Supply and Sanitary Engineering. *Hf.* 3 hours. 2d half-year.

1 Gr., 9 Sc. Total 10.

- 6d¹. Mr. TURNER. — Canals, Rivers, and Irrigation. — Measurements of the flow of water. — Construction of irrigation works. *Hf.* 3 hours. 1st half-year.

5 Sc. Total 5.

- 7a. Asst. Professor JOHNSON. — Bridges and Buildings. — Graphical Statics. — Details of iron and steel construction. — Lectures and draughting. 9 hours.

7 Sc. Total 7.

- 8a². Asst. Professor JOHNSON. — Masonry and Foundations. *Hf.* 3 hours. 2d half-year. 1 Gr., 1 Se., 27 Sc. Total 29.

- 11a. Messrs. L. S. MARKS and BURKE. — Machinery and Boilers. — Description of the different types of Engines and Boilers. 3 hours.

3 Se., 29 Sc. Total 32.

- 11b². Mr. L. S. MARKS. — Steam-Engine and Boilers. — General theory and design. — Valve gears and governors. *Hf.* 3 hours. 2d half-year.

13 Sc. Total 13.

- 12a¹. Mr. L. S. MARKS. — Efficiency and Economics of Engines and Boilers. *Hf.* 3 hours. 1st half-year.

10 Sc. Total 10.

- 12c². Mr. BURKE. — Heating and Ventilation of Buildings. *Hf.* 2 hours. 2d half-year.

5 Sc. Total 5.

- 13a. Mr. L. S. MARKS. — Engineering Laboratory. — General course in experimental methods. *Hf.* 4 hours. 1 Gr., 1 Se., 23 Sc. Total 26.

- 13b. Mr. L. S. MARKS. — Engineering Laboratory. — Advanced course in experimental Engineering. 6 hours.

8 Sc. Total 8.

- 13d. Mr. TURNER. — Engineering Laboratory. — Measurement of the flow of water, and testing hydraulic machinery. *Hf.* 3 hours.
1 Gr., 4 Sc. Total 5.
- 14a. Mr. MOSES. — Machine Design. — Designing the parts of machinery. — Methods of proportioning the parts for strength and effect. 6 hours.
21 Sc. Total 21.
- 14b. Professor HOLLIS. — Machine Design. — Completed designs of machinery with estimates and specifications for contractors. 6 hours.
6 Sc. Total 6.
- 16a¹. Asst. Professor ADAMS. — Industrial Applications of Electricity. *Hf.* 5 hours. 1st half-year.
9 Sc. Total 9.
- 16c¹. Asst. Professor ADAMS and Mr. WHITING. — Direct Current Dynamo-Electric Machinery. — Theory, testing and practice in management. *Hf.* 5 hours. 1st half-year.
2 Gr., 1 Se., 1 Ju., 1 Sc. Total 5.
- 16c². Asst. Professor ADAMS and Mr. WHITING. — Alternating Currents and Alternating Current Machinery. — Theory and testing. *Hf.* 5 hours. 2d half-year.
1 Gr., 1 Se., 1 Ju., 1 Sc. Total 4.
- 16d¹. Asst. Professor ADAMS and Mr. WHITING. — Direct Current Dynamo-Electric Machinery. — Continuation of Course 16c, with practice in design and construction. *Hf.* 6 hours. 1st half-year.
6 Sc. Total 6.
- 16f². Asst. Professor ADAMS and Mr. WHITING. — Alternators, Transformers, Alternating Current Motors, and Allied Apparatus. — Continuation of Course 16c with practice in design and construction. *Hf.* 6 hours. 2d half-year.
7 Sc. Total 7.
- 18a¹. Mr. BURKE. — Metallurgy. — Manufacture of the metals used in engineering construction. — Lectures on the practical working of iron and steel. *Hf.* 3 hours. 1st half-year.
1 Gr., 1 Se., 8 Sc. Total 10.
21. Professor HOLLIS. — Engineering Conference on the general theory of Machinery and the commercial and economic questions involved in the selection of types of machinery for given localities and duties. — Comparison of different methods of transmitting power. 2 hours.
16 Sc. Total 16.
- 22². Mr. ARCHER. — Contracts and Specifications. — The principles of Common Law as applied to contracts. — Practice in drawing up specifications. *Hf.* 1 hour. 2d half-year.
1 Gr., 18 Sc. Total 19.

Military Science.

- 1¹. Lieutenant ROBINSON (U. S. Artillery). — The Operations of War (organization, tactics, logistics, strategy); Military History; Military Law. — Lectures. — Required reading and reports. *Hf.* 3 hours. 1st half-year.
53 Se., 32 Ju., 42 So., 6 Sp., 6 Sc. Total 139.
- 2². Lieutenant ROBINSON (U. S. Artillery). — Military Engineering; Fortification; Ordnance and Gunnery; Electricity in Warfare. — Required reading and problems. *Hf.* 3 hours. 2d half-year.
31 Se., 28 Ju., 28 So., 2 Sp., 5 Sc. Total 94.

Physics.*Primarily for Undergraduates:—*

B. Professor HALL and Mr. COLLINS.—Experimental Physics.—Lectures and laboratory work. *Hf.* 3 hours.

4 Ju., 24 So., 25 Fr., 19 Sp., 27 Sc. Total 99.

C. Asst. Professor SABINE and Mr. L. D. HILL.—Experimental Physics.—Mechanics, Sound, Light, Magnetism, and Electricity.—Lectures and laboratory work. 5 hours.

2 Gr., 5 Se., 3 Ju., 11 So., 27 Fr., 5 Sp., 24 Sc. Total 77.

1. Professor HALL and Mr. McELFRESH.—General Descriptive Physics.—Lectures and laboratory work. 4 hours.

3 Se., 3 Ju., 16 So., 6 Fr., 2 Sp., 41 Sc. Total 71.

For Graduates and Undergraduates:—

2. Asst. Professor SABINE.—Light and Heat.—Lectures and laboratory work in Thermometry and Physical Optics. 8 to 10 hours.

4 Gr., 1 Se., 1 Sc. Total 6.

3. Professor B. O. PEIRCE and Mr. DURWARD.—Electrostatics, Electrokinematics, and parts of Electromagnetism.—Lectures and laboratory work. 8 to 10 hours.

2 Gr., 4 Se., 3 Ju., 7 So., 1 Fr., 2 Sc. Total 19.

4. Professor TROWBRIDGE, Asst. Professor SABINE, and Mr. BILLINGS.—Electrodynamics, Magnetism, and Electromagnetism.—Lectures (2 hours) and laboratory work.

3 Gr., 3 Ju., 1 Sc. Total 7.

5¹. Professor HALL.—Elements of Thermodynamics. *Hf.* 3 hours. 1st half-year.

3 Gr., 5 Se., 19 Sc. Total 27.

6². Professor HALL.—Modern Developments of Thermodynamics. *Hf.* 3 hours. 2d half-year.

5 Gr., 4 Se. Total 9.

Primarily for Graduates:—

8. Professor TROWBRIDGE.—Electrodynamics, with special reference to Periodic Currents.—Laboratory work, 9 hours.

2 Gr. Total 2.

9. Professor B. O. PEIRCE.—Portions of the Mathematical Theory of Electricity and Magnetism. 8 hours.

3 Gr. Total 3.

COURSES OF RESEARCH.

20b. Professor B. O. PEIRCE.—Investigation of Problems in Mathematical Physics.

1 Gr. Total 1.

20c. Professor HALL.—Electromagnetism and Heat Conduction.

1 Gr., 1 Ju. Total 2.

20d. Asst. Professor SABINE.—Light and Heat.

2 Gr. Total 2.

Chemistry.*Primarily for Undergraduates:—*

B. Dr. TORREY and Mr. BLACK.—Experimental Chemistry.—Lectures, 2 hours. Laboratory work, 4 hours. 4 Ju., 11 So., 33 Fr., 5 Sp., 1 Sc. Total 59.

1. Professor JACKSON, and Messrs. FULLER, BOOS, GALLIVAN, GARRELO, HOLLISTER, and MERIGOLD. — General Descriptive Chemistry, including its applications in the arts, and embracing the scheme of the chemical elements. — Lectures, 2 hours. Laboratory work, 4 hours.

1 Gr., 13 Se., 31 Ju., 55 So., 41 Fr., 6 Sp., 132 Sc. Total 279.

- 2^d. Dr. TORREY. — Organic Chemistry (elementary course). *Hf.* 3 hours. 1st half-year. 3 Gr., 15 Se., 24 Ju., 6 So., 2 Fr., 11 Sc. Total 61.

3. Professor H. B. HILL, and Messrs. SYLVESTER, SOCH, HOLMES, and DOW. — Qualitative Analysis (chiefly laboratory work). 3 hours.

2 Gr., 23 Se., 37 Ju., 16 So., 1 Sp., 20 Sc. Total 99.

4. Asst. Professor RICHARDS and Mr. BAXTER. — Quantitative Analysis, gravimetric and volumetric (chiefly laboratory work). 3 hours.

2 Gr., 3 Se., 10 Ju., 3 So., 1 Sp., 9 Sc. Total 28.

For Graduates and Undergraduates: —

- 8^d. Asst. Professor RICHARDS. — History of Chemistry and Chemical Philosophy. *Hf.* 3 hours. 2d half-year.

3 Gr., 8 Se., 13 Ju., 2 So., 6 Sc. Total 34.

- 9^d. Asst. Professor RICHARDS. — Advanced Quantitative Analysis. *Hf.* 3 hours. 1st half-year.

1 Gr., 4 Se., 1 Ju., 4 Sc. Total 10.

- 10^d. Asst. Professor RICHARDS. — Gas Analysis. *Hf.* 3 hours. 2d half-year.

1 Gr., 3 Se., 1 Ju., 1 So., 4 Sc. Total 10.

5. Professor H. B. HILL and Mr. SOCH. — The Carbon Compounds. — Systematic lectures upon the theories of Organic Chemistry and the properties of the more important compounds. — Ultimate organic analyses. — Preparation of organic compounds in the laboratory. 3 hours.

1 Gr., 6 Se., 2 Ju., 1 So., 2 Sc. Total 12.

Primarily for Graduates: —

6. Asst. Professor RICHARDS and Dr. COGGESHALL. — Physical Chemistry. — Lectures, 2 hours. Laboratory, 1 hour.

2 Gr., 2 Se. Total 4.

COURSES OF RESEARCH.

- 20a. Asst. Professor RICHARDS. — Inorganic Chemistry, including Determination of Atomic Weights. 5 hours.

3 Gr. Total 3.

- 20b. Professor JACKSON. — Organic Chemistry. 5 hours.

3 Gr., 1 Se. Total 4.

- 20c. Professor H. B. HILL. — Organic Chemistry. 6 hours.

3 Gr. Total 3.

- 20d. Asst. Professor RICHARDS. — Physical Chemistry. 5 hours.

1 Gr. Total 1.

Botany.

Primarily for Undergraduates: —

- 1st. Professor GOODALE and Mr. JONES. — Botany. — Lectures (2 hours) and laboratory practice. *Hf.* 2d half-year.

1 Gr., 8 Se., 18 Ju., 33 So., 31 Fr., 10 Sp., 28 Sc. Total 129.

- 2nd. Asst. Professor THAXTER. — Morphology of Plants. *Hf.* Lectures (3 hours) and laboratory work. 1st half-year.

4 Gr., 6 Se., 7 Ju., 9 So., 2 Sp., 20 Sc. Total 48.

For Graduates and Undergraduates:—

3. Mr. JONES. — Botany (second course). — Morphology, Histology (with special reference to the technique of the microscope), and Physiology of Flowering Plants. Lectures and laboratory practice. 8 hours.
3 Gr., 2 Ju., 5 Sc. Total 10.
- 4². Professor FARLOW and Asst. Professor THAXTER. — Cryptogamic Botany. Lectures and laboratory work. *Hf.* 8 hours. 2d half-year.
4 Gr., 1 Se., 1 Ju., 7 Sc. Total 13.
5. Professor GOODALE. — Systematic and Economic Botany. 8 hours.
3 Gr., 2 Se., 2 Ju., 1 So. Total 8.
6. Asst. Professor THAXTER. — Special Morphology and Classification of Cryptogams. Laboratory course with occasional lectures.
4 Gr., 2 Se. Total 6.

Primarily for Graduates:—

COURSES OF RESEARCH.

- 20a. Professor GOODALE. — Structure and Development of Phanerogams. — Experimental Vegetable Physiology. — Systematic Botany (Phanerogams and Pteridophytes). — Economic and Medical Botany.
3 Gr., 1 Se., 1 So., 1 Sc. Total 6.
- 20b. Professor FARLOW and Asst. Professor THAXTER. — Structure and Development of Cryptogams.
4 Gr. Total 4.

Zoölogy.

Primarily for Undergraduates:—

- 1¹. Dr. C. B. DAVENPORT and Mr. LINVILLE. — Zoölogy. — Lectures and laboratory demonstrations. *Hf.* 5 hours. 1st half-year.
1 Gr., 13 Se., 13 Ju., 25 So., 25 Fr., 6 Sp., 34 Sc. Total 122.
- 2². Dr. G. H. PARKER and Mr. HAMAKER. — Morphology of Animals. — Lectures and laboratory work. *Hf.* 8 hours. 2d half-year.
3 Gr., 5 Se., 6 Ju., 9 So., 2 Fr., 3 Sp., 17 Sc. Total 45.

For Graduates and Undergraduates:—

3. Dr. G. H. PARKER and Mr. HATHAWAY. — Comparative Anatomy of Vertebrates. — Lectures, laboratory work, and reports. 8 hours.
5 Gr., 8 Se., 10 Ju., 2 So., 14 Sc. Total 39.
- 4¹. Professor MARK and Dr. W. McM. WOODWORTH. — Microscopical Anatomy. — Lectures and laboratory work. *Hf.* 8 hours. 1st half-year.
2 Gr., 4 Se., 2 Ju., 5 Sc. Total 13.
- 5². Professor MARK and Dr. W. McM. WOODWORTH. — Embryology of Vertebrates. — Lectures and laboratory work. *Hf.* 8 hours. 2d half-year.
2 Gr., 4 Se., 2 Ju., 4 Sc. Total 12.
11. Dr. C. B. DAVENPORT. — Experimental Morphology. — Phylogenesis studied as a process. — Lectures, laboratory work, and a thesis. 2 hours.
5 Gr., 2 Se., 2 Sc. Total 9.
- 16¹. Dr. G. H. PARKER. — The Nervous System and its Terminal Organs. — Central Nervous Organs and Terminal Organs of Efferent Nerves. — Lectures and reports. *Hf.* 8 hours. 1st half-year.
3 Gr., 8 Se., 1 Ju., 1 So., 4 Sc. Total 23.

Primarily for Graduates:—

COURSE OF RESEARCH.

- 10a. Professor SHALER.—Anatomy and Development of Vertebrates and Invertebrates. 10 Gr., 1 Sc. Total 11.

Geology and Geography.

Primarily for Undergraduates:—

4. Professor SHALER and Messrs. J. B. WOODWORTH and WOODMAN.—Elementary Geology. Lectures, with collateral reading. *Hf.* 2 hours.
2 Gr., 61 Ju., 94 So., 89 Fr., 18 Sp., 44 Sc. Total 308.
5. Messrs. J. B. WOODWORTH and WOODMAN.—Elementary Field and Laboratory Geology.—Laboratory work with occasional lectures (4 hours), in February and March; field work (one half-day) and laboratory work, in April and May. *Hf.* 2d half-year.
9 Ju., 6 So., 28 Fr., 5 Sp., 29 Sc. Total 77.
- 2¹. Professor DAVIS.—Physiography.—Lectures, written exercises, laboratory and field work. *Hf.* 4 hours and additional laboratory and field work. 1st half-year. 4 Gr., 8 So., 8 Ju., 3 So., 2 Fr., 33 Sc. Total 58.
- 1¹. Mr. WARD.—Meteorology.—Lectures, written exercises, observations, and laboratory work. *Hf.* 4 hours and additional laboratory work. 2d half-year. 9 Gr., 2 So., 14 Ju., 17 So., 7 Fr., 4 Sp., 41 Sc. Total 94.
8. Professor DAVIS and Mr. WARD.—Physiography and Meteorology.—Lectures. *Hf.* 2 hours. 4 Ju., 3 So., 5 Sp. Total 12.
- For Graduates and Undergraduates:—*
6. Professor DAVIS.—Physiography of the United States.—Lectures, library work, and reports. *Hf.* 3 hours. 2d half-year.
4 Gr., 7 So., 8 Ju., 4 Sc. Total 18.
8. Messrs. J. B. WOODWORTH and WOODMAN.—General Critical Geology.—Lectures, field work, reports, and reading. 2 hours and field work.
3 Gr., 6 So., 3 Ju., 5 Sc. Total 17.
- 16¹. Mr. J. B. WOODWORTH.—Glacial Geology.—Lectures, conferences, and field work. *Hf.* 2 hours and field and laboratory work. 1st half-year.
3 Gr., 2 So., 2 Ju., 3 Sc. Total 10.
- 17¹. Mr. JAGGAR.—Experimental and Dynamical Geology.—Lectures (2 hours), laboratory work, and occasional field work. *Hf.* 1st half-year.
1 Gr. Total 1.
- 19¹. Mr. WARD.—Climatology.—Lectures, library work, and reports. *Hf.* 3 hours. 1st half-year. 2 Gr., 6 So., 1 Ju., 1 So., 2 Sc. Total 12.
14. Professor SHALER and Dr. R. T. JACKSON.—General Palaeontology.—Lectures and theses. *Hf.* 2 hours.
3 Gr., 6 So., 1 Ju., 3 So., 5 Sc. Total 18.
13. Dr. R. T. JACKSON.—Invertebrate Palaeontology.—Lectures (2 hours) and laboratory work. 1 Gr., 1 Sc. Total 2.
15. Professor SHALER and Dr. R. T. JACKSON.—Historical Geology.—Laboratory and field work, with conferences and theses. 1 hour.
1 So., 2 Sc. Total 3.

10. Asst. Professor SMYTH. — Mining Geology. — Lectures, reading, and occasional field work. 3 hours. 2 Se., 1 Ju., 6 Sc. Total 9.

14. Professor SHALER and Asst. Professor SMYTH. — Economic Geology. — Lectures, reading, and theses. 2 hours. 1 Gr., 1 Sc. Total 2.

Primarily for Graduates: —

COURSES OF RESEARCH.

20. Professor DAVIS. — Physiography (advanced course). — Conferences, reports, and theses. 1 hour. 2 Gr., 1 Se., 2 Sc. Total 5.

22a. Mr. JAGGAR, in coöperation with Professors SHALER, DAVIS, and WOLFF, Asst. Professor SMYTH and Mr. J. B. WOODWORTH. — Advanced Geological Field Work. — Field and library work, with reports, conferences, and theses. 1 hour. 2 Sc. Total 2.

22b. Professor SHALER and other instructors in the Department. — Geological Investigation in the Field and Laboratory. 1 Gr., 1 Sc. Total 2.

Mineralogy and Petrography.

Primarily for Undergraduates: —

2. Professor WOLFF, Dr. PALACHE, and Dr. RANSOME. — Mineralogy (including Crystallography, Physical and Chemical Mineralogy, and Descriptive Mineralogy). 3 hours and laboratory work. 2 Gr., 6 Se., 8 Ju., 4 So., 14 Sc. Total 29.

For Graduates and Undergraduates: —

7¹. Dr. PALACHE. — Crystallography. — Practical exercises in the measurement, discussion, and drawing of crystals, with occasional lectures. *Hf.* 1st half-year. 1 Gr. Total 1.

8². Professor WOLFF and Dr. PALACHE. — Physical Crystallography, mainly Optical Mineralogy and its applications. — Lectures and laboratory work. *Hf.* 2d half-year. 1 Gr. Total 1.

12. Professor WOLFF and Dr. RANSOME. — Petrography. — Lectures (3 hours), laboratory work, and theses. 1 Gr., 1 Se., 8 So. Total 5.

Mining and Metallurgy.

These courses cannot be counted towards the degree of A.B.

1². Asst. Professor SMYTH. — Mining. — Prospecting and Exploring. *Hf.* 3 hours. 2d half-year. 1 Ju., 1 Sp., 7 Sc. Total 9.

2¹. Mr. FORSYTHE. — Metallurgy. — Metallurgy of iron and steel, copper and nickel. — Lectures, reading, and excursions. *Hf.* 3 hours. 1st half-year. 3 Sc. Total 3.

3². Mr. FORSYTHE. — Metallurgy. — Metallurgy of lead, zinc, gold, silver, and the minor metals. Lectures, reading, and excursions. *Hf.* 3 hours. 2d half-year. 6 Sc. Total 6.

5. Asst. Professor SMYTH. — Mining. — Coal and Metal Mining, including excavation, development, underground and surface transportation, drainage, ventilation. — Lectures and reading. 3 hours. 1 Sc. Total 1.

6. Mr. FORSYTHE. — Metallurgical Chemistry. — The analysis of ores, metals, slags, fuels, and refractory materials. — Fire assaying. — Chiefly laboratory work. 8 hours. 2 Sc. Total 2.

American Archaeology and Ethnology.

Primarily for Graduates: —

1. Professor PUTNAM and Mr. RUSSELL. — General Anthropology, with special reference to American Archaeology and Ethnology. — Lectures (3 hours) and laboratory work. 2 Gr., 1 Se. Total 3.

COURSE OF RESEARCH.

20. Professor PUTNAM. — American Archaeology and Ethnology. 2 Gr., 2 Se. Total 4.

Anatomy, Physiology, and Hygiene.

These courses may be counted towards the degree of S.B. only, except Course 1, which may also be counted towards the degree of A.B.

- 1st. Asst. Professor G. W. FITZ and Dr. BUNKER. — Elementary Physiology and Hygiene. — Personal Hygiene. — Emergencies. Lectures (3 hours) and laboratory work (3 hours). *Hf.* 2d half-year. 4 Se., 12 Ju., 18 So., 3 Fr., 4 Sp., 20 Sc. Total 56.
- 2nd. Dr. D. A. SARGENT and Asst. Professor G. W. FITZ. — History and Philosophy of Physical Education. *Hf.* 1 hour. 2d half-year. 2 Sc. Total 2.
- 4th. Dr. D. A. SARGENT. — Anthropometry. — Measurements and Tests of the Body. — Effects of Age, Nurture, and Physical Training. — Lecture and practical exercises. *Hf.* 3 hours. 1st half-year. 2 Sc. Total 2.

Announcement of Instruction for 1897-98.

The Announcement of Courses of Instruction for 1897-98 was submitted to the Faculty by the Committee on Instruction at the three meetings of the Faculty held on the twenty-third and the thirtieth of March and the sixth of April, and having been considered and adopted by the Faculty, was issued for public distribution about May the twentieth. The Faculty, however, voted, March the twenty-third, to authorize each Department or Division to issue its own programme separately, immediately on the adoption of such programme by vote of the Faculty. The several lists were moreover publicly posted, as soon as they were adopted. A large part of the Announcement had therefore been made known to students and other inquirers before the issue of the complete pamphlet. Some changes in the lists of courses provided by the Faculty were made subsequently to the publication of the Announcement. The Catalogue for the year 1897-98 will, as usual, contain the programme in its final form; to which also the following account of its contents must be understood to apply.

COURSES GIVEN IN 1896-97 AND AGAIN OFFERED FOR 1897-98.

The programme as finally established for 1897-98 includes the following courses, given in 1896-97 and named in the foregoing list; which disregards, as of secondary moment for the purpose of this report, changes in instructors and some alterations of title which did not materially transform the nature of the courses in which they occurred.

- Semitic 1, 6, 12, 16¹, 18, 2, 3¹, 3², 4, 7, 20a;
 Indo-Iranian 1¹, 1², 2¹, 3², 5 (as *Hf.*), 20;
 Greek, Introductory Lectures, *A, F, B, C, E*, 2, 3, 6, 7, 8;
 Latin, Introductory Lectures, *A, F, B, C, D, E*, 1, 2, 3, 6, 7, 8;
 Classical Philology 25, 39², 50 (as full course), 54, Seminary;
 English *A, B, C, BC*, 31, 22, 28, 30, 6, 10, 1, 2, 11¹, 11², 12, 3²,
 13, 14, 24¹, 5, 20;
 German *A, B, C, 1a, 1b, 1c, E, F, G*, 2, 4, 6, 7, 5, 8, 10, (Philology) 12¹;
 French *A, 1b, 1c, 1a, 2c, 2a*, 3, 4, 5, 6c, 6, 14, 11;
 Italian 1, 2, 4;
 Spanish 1, 2;
 Romance Philology 3, 4, 2², 20 (as 20d);
 Comparative Literature 2;
 Celtic 1² (as 1¹);
 Slavic 1 (as 1a), 2 (as 2a), 3¹;
 History 1, 6, 7, 8, 9, 11, 12¹, 12², 19¹, 10, 13, 22, 20a, 20b, 20c, 20e;
 Government 1¹, 4, 5, 7², 8²;
 Economics 1, 11, 15, 2, 3, 14, 9, 4, 16², 7² (as 7¹), 12² (as 12¹), 20;
 Philosophy 1 (as 1a), 3, 4, 5, 6, 7, 9, 11 (as 11² *Hf.*), 13, 20a, 20b,
 20c, 20d, 20e, 16, 18, 17;
 Fine Arts 1, 2;
 Architecture 1a, 2a, 3a, 3b, 3c (as *Hf.*), 4a, 4b, 4c;
 Music 1, 2, 5, 6;
 Mathematics *A, B, C, D, E, F*, 2, 4, 1² (as 1¹), 3, 5, 12¹, 10, 13, 16,
 17 (as *Hf.*), 25;
 Engineering 1a, 1b, 1c, 1d, 1f, 3a (extended as 3a and 3b, *Hf.*), 3c,
 3d, 4a, 4c, 4d, 10a, 10b, 10c, 10d, 10e, 4c, 5a, 5c, 6a, 6c, 6d, 7a, 8a,
 11a, 11b, 12a, 12c, 13a, 13b, 13d, 14a, 14b, 16a, 16c, 16d (as full
 course), 16c, 18a, 21, 22, also 2a, 2b, 2c as Astronomy 1¹, 2², 3;
 Military Science 1¹, 2²;
 Physics *B, C*, 1, 2, 3, 4, 6¹, 6², 8, 9, 20c (as 20d), 20d (as 20e);
 Chemistry *B*, 1, 2¹, 3, 4, 8², 9¹, 10², 5, 6, 20a, 20b, 20c, 20d;
 Botany 1², 2¹, 3, 4², 5, 20a, 20b;
 Zoology 1¹, 2², 3, 4¹, 5², 20a;
 Geology and Geography 4, 5², 8, 16¹, 17¹, 19¹ (as 19²), 14 (as full
 course), 15, 10, 18 (as *Hf.*), 20, 22a, 22b;
 Mineralogy and Petrography 2, 7¹, 8², 12;
 Mining and Metallurgy 1², 2¹, 3², 5, 6;
 American Archaeology and Ethnology 1, 20 (as 20a);
 Anatomy, Physiology, and Hygiene 1², 2² (as 2¹), 4¹.

COURSES OFFERED FOR 1897-98 AFTER AN INTERVAL.

The following courses, not given in 1896-97, but given either in 1894-95 or in 1895-96, and described in my report for one or the other of those years, were restored to the list. The subject of each course is here briefly named in a parenthesis.

Semitic 15 (Bagdad Califate), 5 (Assyrian, second course), 8 (Arabic, second course);
 Indo-Iranian 4 (Pāli, first course, as *Hf.*);
 Latin 10 (Private Life of the Romans), 18¹ (Catullus);
 Classical Philology 37 (Private Life of the Greeks, second course);
 English 3¹ (Anglo-Saxon), 17 (English Lit. in relation to Ital. and Span. Lit. in XV. and XVI. centuries, as *Hf.*), 26² (Langland and Gower), 27¹ (English and Scottish Popular Ballads, as *Hf.*);
 Germanic Philology 13 (Old Norse), 21 (History of German Language, as full course);
 French 9 (Lit. of XVII. century), 20^a (as Romance Phil. 20^a, Comedies of Molière);
 History 2 (Polit. History of Greece), 5 (Mediæval Church), 18 (Constit. History of Roman Repub.);
 Government 11 (History of Polit. Theories);
 Economics 7² (Financial Administration), 18² (Scope and Method in Economic Theory and Investigation);
 Philosophy 19^a (Methods of Teaching Science);
 Fine Arts 3 (Ancient Art, as full course);
 Architecture 1^c (Renaissance and Modern);
 Music 3 (History of Music);
 Mathematics 6 (Quaternions, first course), 11 (Hydrostatics and Hydrokinematics);
 Physics 20^a (Spectrum Analysis);
 Geology and Geography 7² (Physiography of Europe), 21 (Meteorology, advanced course), 27 (Pre-Cambrian Geology of N. America);
 Anatomy, Physiology, and Hygiene 5² (Applied Anat. and Animal Mechanics), 6² (Remedial Exercises).

Some of these restored courses are usually given in alternate years, or at very frequent intervals, and take their regular place accordingly in this year's programme.

NEW OR REMODELLED COURSES OFFERED FOR 1897-98.

The programme provided for 1897-98 also contained a large number of new courses, courses revived after a considerable period of time, and courses offered in a decidedly remodelled form. A list of these courses is subjoined.

Semitic Languages and History.

Primarily for Graduates: —

9. Professor TOR. — Ethiopic. — Praetorius' Grammar, with references to Dillmann's Grammar and Chrestomathy. — Enoch. *Hf.* 1 hour.

The Classics.

For Undergraduates and Graduates: —

- Greek 5¹. Dr. F. C. BASSITT. — The Elements of Modern Greek. *Hf.* 1st half.

Primarily for Graduates:—

25th. Professor KITTREDGE. — Anglo-Saxon. — *Cædmon*. — *Cynewulf*. *Hf.* 2d half-year. 3 hours.

9th. Mr. FLETCHER. — English Literature. — Spenser. *Hf.* 2d half-year. 3 hours.

COURSES OF RESEARCH.

20th. Mr. FLETCHER. — English Literature in its relation to Italian Literature in the Sixteenth Century.

20^a. Asst. Professor WENDELL. — Literary History of America.

German.

Primarily for Undergraduates:—

2^a. Associate Professor BARTLETT. — German Literature of the Eighteenth Century. — Selections from the works of Lessing, Goethe, and Schiller. — German Ballads and Lyrics. — Translation. — Reading at sight. — Composition. 3 hours.

This course is conducted in English and is especially designed for students who have passed the admission examination in Advanced German or who have taken Course C.

For Undergraduates and Graduates:—

5^a. Mr. NICHOLS. — History of German Literature in the Nineteenth Century. — Lectures, with collateral reading. *Hf.* 2d half-year. 3 hours.

11th. Professor FRANCKE. — The German Romantic Movement; with special reference to its social and political aspects. — The brothers Schlegel. — Tieck. — Novalis. — Arnim. *Hf.* 1st half-year. 2 hours.

11th. Professor FRANCKE. — The German Romantic Movement; with special reference to its social and political aspects. — Kleist. — Uhland. — Hoffmann. — Heine. *Hf.* 2d half-year. 2 hours.

Primarily for Graduates:—

16th. Professor KITTREDGE. — Germanic Mythology. *Hf.* 1st half-year. 3 hours.

SEMINARY COURSES.

20^a. Asst. Professor VON JAGEMANN. — Selected Topics in the History of the German Language.

20^b. Dr. POLL. — The Tiersage.

20^c. Professor FRANCKE. — Selected Topics in the History of the German Romantic Movement.

French.

For Undergraduates and Graduates:—

13. Mr. C. H. C. WRIGHT. — The rise and growth of Classicism in French Literature. — Lectures, reading and theses. 3 hours.

This course is conducted in English, and is open to students who have passed in Course 6c or 6 with a grade not lower than C.

7¹. Asst. Professor DE SUMICHRAST. — Victor Hugo and the Romanticist movement. — Lectures, themes, and collateral reading. *Hf.* 1st half-year. 8 hours.

7². Asst. Professor DE SUMICHRAST. — Victor Hugo and the reaction against the Romanticist movement. — Lectures, themes, and collateral reading. *Hf.* 2d half-year. 8 hours.

Primarily for Graduates : —

16. Professor F. BÔCHER. — French Tragedy in the Sixteenth and Seventeenth Centuries. 2 hours.

SPECIAL STUDY IN ROMANCE LANGUAGES AND LITERATURES.

20c. Dr. MARCOU. — The syllabic value of contiguous vowels in French verse during the Fourteenth and Fifteenth Centuries.

20c¹. Asst. Professor MARSH. — The Origin and Development of Historical Epic Poetry in Mediaeval Europe.

Celtic.

Primarily for Graduates : —

2². Dr. F. N. ROBINSON. — Middle Irish. — Windisch, Irische Texte. — Lectures on the History of Celtic Literature. *Hf.* 2d half-year. 8 hours.

Slavic Languages.

For Undergraduates and Graduates : —

1b. Mr. WIENER. — Russian. — Literature of the Nineteenth Century. Pushkin, Gogol, Turgenev, Tolstoy. — Composition. 8 hours.

History.

For Undergraduates and Graduates : —

21. Asst. Professor PLATNER. — History of the Church since the Reformation. 2 hours.

14. Professor HART. — History of American Diplomacy : Treaties ; application of International Law ; Foreign Policy. 8 hours.

Open to those only who have taken a narrative course in American History and a course in International Law.

Primarily for Graduates : —

25². Mr. SULLIVAN. — The Elements of Latin Palaeography, with reference to the use of historical sources. *Hf.* 2d half-year. 8 hours.

SEMINARY COURSE.

20d. Dr. COOLIDGE. — Recent Diplomatic History of Europe.

Government.

For Undergraduates and Graduates : —

9¹. Mr. SULLIVAN. — Theories of the State in the Middle Ages. *Hf.* 1st half-year. 8 hours.

Primarily for Graduates:—

10. Mr. A. L. LOWELL. — Modern Governments: Studies in existing Political Systems and in the influence of Political Parties. 8 hours.
14. Professor J. B. THAYER. — Constitutional Law. 2 hours.
- 15¹. Professor BEALE. — International Law (advanced course). *Hf.* 1st half-year. 8 hours.

Economics.*For Undergraduates and Graduates:—*

6. Dr. CALLENDER. — The Economic History of the United States. 8 hours.
- 5². Mr. MEYER. — Public Works, Railways, Postal and Telegraph Service, and Monopolized Industries, under Corporate and Public Management. *Hf.* 2d half-year. 8 hours.

Philosophy.*Primarily for Undergraduates:—*

- 1b. Professor ROYCE, assisted by Dr. RAND. — Outlines of the History of Philosophy, and Introduction to the Study of the Problems of Philosophical Theory. — Weber, History of European Philosophy. 8 hours.

Courses 1a and 1b are both intended to cover ground that is useful as a preparation for the studies of the more advanced courses. These two elementary courses, however, are independent of each other, and may, with equal advantage, be taken in the same year, or in either order in successive years. It is also possible to pursue higher courses after having taken one of the elementary courses and without taking the other. Either of these courses may be counted as one full course by any student not a Senior; but a Senior may count either of them as one half-course only. Course 1a cannot be counted at all unless the student passes in the work of both half-years.

For Undergraduates and Graduates:—

- 3¹. Professor MÜNSTERBERG. — Advanced Psychology. — Lectures, prescribed readings, and a thesis. *Hf.* 1st half-year. 8 hours.
- 14¹. Mr. LOUGH. — Experimental Psychology (elementary laboratory course). — The psychology of sensation, and of the elementary mental processes. — Two lectures and four hours of laboratory work each week. A thesis. *Hf.* 1st half-year. 8 hours.
- 14². Mr. LOUGH. — Experimental Psychology (advanced course). — Systematic exercises in the technique and use of instruments employed in research work. — One lecture and six hours of laboratory work each week. A thesis on some experimental problem. *Hf.* 2d half-year. 7 hours.
12. Dr. SANTAYANA. — Greek Philosophy, with especial reference to Plato. — Lectures, prescribed reading, and theses. 8 hours.
- The reading required for this course will be all in English, but a knowledge of Greek history and literature is highly desirable for those who elect the course.
- 11¹. Dr. SANTAYANA. — Descartes, Spinoza, and Leibnitz. — Lectures, recitations, and prescribed reading. *Hf.* 1st half-year. 8 hours.

- 8¹. Professor JAMES. — The Philosophy of Kant. — Special reports and lectures.
Hf. 1st half-year. 3 hours.

Primarily for Graduates (SEMINARY COURSE) : —

- 20^f. Dr. SANTAYANA. — Studies in Scholastic Philosophy. 2 hours.

Architecture.

Engineering.*Primarily for Undergraduates:—*

- 3c. Messrs. MOSES and OSBORN. — Stereotomy, Shades, Shadows, and Perspective. Lecture (1 hour) and draughting (6 hours). *Hf.* 2d half-year.
This course is open to students who have passed satisfactorily in Course 3b.
It may be counted towards the degree of A.B. with the consent of the Chairman of the Division.

For Undergraduates and Graduates:—

- 5b. Asst. Professor JOHNSON. — Elementary Statics. — Graphical and Analytical Methods. — Designing of simple structures. *Hf.* 6 hours.
This course is open to students of Architecture who have passed satisfactorily in Engineering 1a, 1b and 1d, or their equivalents.
It cannot be counted towards the degree of A.B.
- 17a. Asst. Professor ADAMS. — The Electrical Transmission and Distribution of Power. Lectures (1 hour) and visits to power stations. *Hf.*
This course is open to students who have passed satisfactorily in Courses 16c and 16e. It cannot be counted towards the degree of A.B.

Physics.*Primarily for Graduates:—*

7. Professor E. H. HALL. — The Theory of Probability and the Kinetic Theory of Gases. *Hf.*

COURSES OF RESEARCH.

- 20b. Professor TROWBRIDGE. — The Electromagnetic Theory of Light. 4 hours.
20c. Professor B. O. PEIRCE. — Electricity and Magnetism.

Chemistry.*Primarily for Graduates:—*

- Dr. H. E. SAWYER. — A course of lectures on the Chemistry and Technology of Ferments.
This course cannot be counted towards a degree.

Zoölogy.*For Undergraduates and Graduates:—*

9. Dr. R. T. JACKSON. — Fossil Invertebrates. — Lectures (2 hours) and laboratory work.
Course 9 is open to those only who have taken Zoölogy 1, Geology 4, and either Zoölogy 2 or Geology 5. If possible, preparation for this course should include both Zoölogy 2 and Geology 5.
This course replaces Geology 13.
10. Dr. C. B. DAVENPORT. — Experimental Morphology. — Ontogenesis studied as a process. — Lectures, laboratory work, and a thesis. 3 hours.
- 15¹. Dr. G. H. PARKER. — The Nervous System and its Terminal Organs. — Sense Organs. — Lectures and reports. *Hf.* 1st half-year. 3 hours.

Geology and Geography.*Primarily for Undergraduates:—*

Courses A, B, 4, and 5, and the Elementary Summer Courses in Geology and Geography are intended for beginners and for those who wish to get a general view of the subjects of which they treat. They are open to Freshmen. Courses A, B, 4, and 5 cannot be counted by Seniors towards the degree of A.B.

A¹. Professor DAVIS and Mr. BOUTWELL. — Elementary Physiography. — Lectures, written exercises, laboratory and field work. *Hf.* 2d half-year. 3 hours; a laboratory conference of one hour; and additional laboratory hours.

Course A is required for admission to Courses 2, 6, 7, and 20. Course A is recommended to students expecting to take Course 8 and the more advanced courses in Geology.

B². Mr. WARD. — Meteorology (elementary course). — Lectures, written exercises, observations, and laboratory work. *Hf.* 2d half-year. 3 hours; a laboratory conference of one hour; and additional laboratory hours.

Course B is required for admission to Courses 1, 19, 21, and 25.

For Undergraduates and Graduates:—

28¹. Professor REUSCH. — Volcanoes and their relation to Eruptive Rocks in general. — Earthquakes and their relation to movements of the Earth's crust. *Hf.* 1st half-year. 3 hours.

29¹. Professor REUSCH. — The Geology of Northern Europe, and its bearings on General Geology. *Hf.* 2d half-year. 3 hours.

The third hour in Courses 28 and 29 will be given to seminary work, including reports and discussions upon geological literature.

24. Professor SHALER and Dr. R. T. JACKSON. — Advanced Palaeontology. — Laboratory work and theses.

This course is open to those only who have studied Zoölogy and Palaeontology.

Mineralogy and Petrography.*Primarily for Undergraduates:—*

3¹. Professor WOLFF — Building Stones. A course of lectures, adapted to students of Architecture, on the composition, occurrence, quarrying, and uses of building stones in the United States. 1st half-year. 1 hour.

This course cannot be counted towards the degree of A.B.

Primarily for Graduates (COURSE OF RESEARCH):—

20. Professor WOLFF and Dr. PALACHE. — Mineralogical and Petrographical Research.

Mining and Metallurgy.

4². Professor SMITH and Mr. FORSYTHE. — Ore-dressing. *Hf.* 2d half-year. 3 hours.

American Archaeology and Ethnology.***Primarily for Graduates:—***

2^d. Mr. RUSSELL.—Somatology. Lectures and Laboratory work. *Hf.* 2d half-year. 3 hours.

This course may be taken either with or after Course 1. It affords an opportunity for work in the osteological department of the Museum, which contains suitable material for the study of racial, sexual, and individual variation, etc. The course is intended for students preparing for the medical profession or for advanced work in Somatology.

COURSE OF SPECIAL STUDY.

20^b. Mr. RUSSELL.—Advanced Somatology. Laboratory work and theses.

This course is open to students who have taken Course 1.

Anatomy, Physiology, and Hygiene.

10^a. Asst. Professor G. W. FITZ.—General Hygiene.—Lectures (8 hours), laboratory, excursions, and reports. *Hf.* 1st half-year.

This course may be counted towards the degree of A.B., but is not open to Freshmen.

It is further to be noted that the courses in German and Germanic Philology are now grouped under the heading of Germanic Languages and Literatures; those in French, Italian, Spanish, Romance Philology, and Comparative Literature, under the heading of Romance Languages and Literatures; and those in Geology and Geography, Mineralogy and Petrography, and Mining and Metallurgy, under the heading of Geology. The courses in Astronomy are separated from those in Engineering, where they have heretofore been placed, and appended to the list in Mathematics; and those in Military Science are appended to the list in Engineering.

Conferences and Excursions.

The so-called Seminaries, Seminary Courses, Courses of Research, etc., named in the several lists given above, are carried on for purposes of advanced special study, a large freedom being usually left to the individual student in the choice of his field. The work done in these courses may, in general, be counted as work done in fulfillment of the requirements for a degree. In addition to the courses here mentioned, the following less formal opportunities of special study are offered in the Announcement of Courses of Instruction for 1897-98,—those in the Divisions of Semitic Studies and Geology having been similarly offered for several past years,—but such studies cannot be directly counted towards a degree:—

THE SEMITIC CONFERENCE.

This conference, which is composed of instructors and students in the Division of Semitic studies, meets twice a month throughout the academic year. Its object is a more detailed discussion of special topics than is ordinarily possible in the class-room. At each meeting a paper is read, which is expected to give the results of independent investigation in the subject presented. The general subject of discussion for 1897-98 is *The Names of Semitic Deities*.

THE MATHEMATICAL CONFERENCE.

This conference is held twice a month. It is intended for the presentation and discussion of work done in the Courses of Reading and Research, of articles in the mathematical journals, and of other suitable matter, and for the meeting of instructors and students. All students pursuing advanced studies in Mathematics are invited to take part in it.

THE PHYSICAL COLLOQUIUM.

Stated meetings are held by the instructors and advanced students in the Department of Physics for the discussion of researches in progress in the Jefferson Laboratory and of the contents of current journals in Physics.


THE GEOLOGICAL CONFERENCE.

The instructors in the Division of Geology will meet the more advanced students in the various courses on Tuesday evenings for the presentation of reports upon subjects investigated by the members, with informal comment and discussion by those present. At every meeting there will be one or more leading papers on subjects previously announced, and discussion will be directed chiefly to the subjects thus presented. There will be also brief statements of work in progress by instructors and students, and comments on new publications and other matters of interest.

GEOLOGICAL EXCURSIONS.

In addition to the systematic excursions in connexion with various courses, a series of excursions to places within a day's travel of Boston will be conducted during the autumn and spring by the instructors in the Division of Geology. These excursions are announced in the University Calendar and are open to all members of the University. Excursions to more distant localities are generally made during the April recess.

Summer Courses of Instruction.

The following is a list of the Courses of Instruction given during the summer of 1897, under the direction of the Faculty of Arts and Sciences, with an enumeration and classification of the students taking each course. The same abbreviations are used as in the list already given, of Courses of Instruction for 1896-97, with the addition of the abbreviation S.S. to denote persons in attendance on the Summer School and otherwise unconnected with the University. The index  denotes courses which may be offered to count towards a degree.

In addition to the courses named in this list, Summer Courses in Medicine and in Dentistry were also given; but these courses are not here reported on, since they did not belong to the work of the Faculty of Arts and Sciences.

SUMMER COURSES OF 1897.

English.

- A. Mr. HURLBUT** assisted by Mr. J. G. HART. — English Composition. — Elementary Course. 6 times a week, for 5 weeks. 2 Sc., 49 S. S. Total 51.
- B. Mr. ABBOTT** assisted by Mr. J. G. HART. — English Composition. — Advanced Course. 6 times a week, for 5 weeks. 40 S. S. Total 40.
- Mr. BOYNTON.** — Anglo-Saxon. 6 times a week, for 5 weeks. 7 S. S. Total 7.
- Mr. FARLEY.** — Chaucer. 6 times a week, for 5 weeks. 7 S. S. Total 7.
- Messrs. HURLBUT** and J. G. HART. — English Literature of the Eighteenth Century. 6 times a week, for 5 weeks. 48 S. S. Total 48.

German.

- Dr. POLL.** — Elementary Course. — Grammar, reading, and composition. 6 times a week, for 5½ weeks. 7 S. S. Total 7.
- Asst. Professor SCHILLING.** — Advanced Course. — Daily lectures, in German, on the history of German Literature, accompanied by the cursory reading of the Nibelungenlied and a few representative works of later periods. — The interpretation of Schiller's Wallenstein, and of Goethe's Faust (Part I). — Themes in German on subjects connected with the lectures or the reading. 6 times a week, for 5½ weeks. 7 S. S. Total 7.

French.

- Asst. Professor DE SUMICHAEST.** — Introductory Course. — Grammar, reading, and composition. 6 times a week, for 5½ weeks. 1 So., 1 Sc., 1 Law, 7 S. S. Total 10.
- Asst. Professor DE SUMICHAEST.** — Advanced Course. — *a.* Lectures, in French, on the history of French literature, with special reference to the Classical period (Corneille, Racine, Molière), and to the great literary movement of the Nineteenth century. — *b.* A thorough study of Corneille's Polyucte, Racine's Athalie, Molière's les Femmes Savantes. Two or three of the more important works of the Nineteenth Century will be taken up in a similar manner. — *c.* Summaries of works and themes on selected topics. 6 times a week for 5½ weeks. 1 S. S. Total 1.

Greek for Teachers.

- Dr. C. B. GULICK.** — Discussion of elementary text-books, and methods used in teaching beginners. — Practice in reading Xenophon and Homer. 12 hours for 5½ weeks. 2 S. S. Total 2.

Latin for Teachers

Mr. C. P. PARKER. — Discussion of methods in teaching Latin to beginners. — Literary study of selections from Pliny's Letters, Juvenal's Satires, and Martial's Epigrams. 6 times a week, for 6 weeks.

23 S. S. Total 23.

History and Government.

Asst. Professor HART and Mr. C. T. WENTWORTH. —

I. American History. 1 Ju., 22 S. S. Total 23.

II. Civil Government. 5 S. S. Total 5.

Psychology.

Mr. J. E. LOUGH. — Experimental Psychology. 6 times a week, for 6 weeks.

1 Sp., 5 S. S. Total 6.

Education and Teaching.


I. **Asst. Professor HANUS.** — General Principles of Education, and Courses of Study.


II. **Professor JAMES.** — Psychology applied to Teaching.

III. **GEORGE I. ALDRICH,** Newton, Mass. — The Powers and Duties of the Town and City Superintendent of Schools. 1 Sp., 30 S. S. Total 31.

Asst. Professor HANUS. — Methods of teaching Geometry and Algebra. 6 times a week, for 6 weeks. 20 S. S. Total 20.

Mathematics.


 **S1. Mr. ASHTON.** — Elementary Solid Geometry. 5 times a week, for 6 weeks. 3 Ju., 1 So., 3 Sp., 10 S. S. Total 17.

 **S2. Mr. LOVE.** — Plane Trigonometry. — Logarithms. — Problems in the calculation of heights, distances, and areas, and in sailing. 5 times a week, for 6 weeks. 2 Se., 1 Ju., 4 Sp., 1 Sc., 10 S. S. Total 18.

 **S3. Mr. LOVE.** — Plane Analytic Geometry. 5 times a week, for 6 weeks. 1 Sc., 2 S. S. Total 3.


S4. Mr. ASHTON. — Calculus. 5 times a week, for 6 weeks. 4 Sc., 4 S. S. Total 8.

Engineering.

 **S1. Mr. TURNER.** — Surveying, Plotting, and Topographical Drawing. — Johnson's Theory and Practice of Surveying. — Geodesy. 6 times a week, for 5 weeks. 2 Fr., 1 S. S. Total 3.

Physics.

S1. Mr. J. Y. BERGEN. — Elementary Experimental Physics. 6 times a week, for 6 weeks. 1 Fr., 1 Sp., 29 S. S. Total 31.

 **S2. Asst. Professor SABINE.** — Experimental Physics. — Measurements in Mechanics, Sound, Light, Electricity, and Magnetism. 6 times a week, for 6 weeks. 1 Sp., 2 Sc., 7 S. S. Total 10.

Chemistry.

Dr. TORREY and Messrs. POTTER and PERKINS. — General Chemistry. 6 times a week, for 6 weeks. 7 S. S. Total 7.

Mr. SYLVESTER. — Qualitative Analysis. 6 times a week, for 6 weeks. 1 Ju., 1 So., 1 Sc., 4 S. S. Total 17.

Mr. G. P. BAXTER. — Quantitative Analysis. 6 times a week, for 6 weeks. 4 S. S. Total 4.

Mr. H. A. TORREY. — Organic Chemistry. 6 times a week, for 6 weeks. 1 So., 1 Sc., 2 S. S. Total 4.

Botany.

S1. Mr. H. L. JONES. — Vegetable Morphology and Systematic Botany. — Laboratory in both subjects. 5 times a week, for 6 weeks. 11 S. S. Total 11.

Geology.

S1. Professor SHALER and other instructors in the Geological Department. — Elementary Geology: at Cambridge. 5 times a week, for 6 weeks. 1 Gr., 1 So., 1 Ju., 2 So., 5 Fr., 1 Sp., 1 Sc., 5 S. S. Total 17.

S2. Professor N. S. SHALER and Mr. J. B. WOODWORTH. — Field work in Southern New England. 6 times a week, for 6 weeks. 1 Ju., 1 So. Total 2.

Geography.

Professor DAVIS and Mr. W. H. SNYDER. — Elementary Physiography. 5 times a week for 6 weeks. 78 S. S. Total 78.

Professor DAVIS and Mr. J. M. BOUTWELL. — Second course, Physiography of the United States. 5 times a week, for 6 weeks. 2 Sc., 10 S. S. Total 12.

Astronomy.

Dr. WILLSON. — Descriptive Astronomy. 8 S. S. Total 8.

Physical Training.

Dr. SARGENT and assistants. — Full Course. 6 times a week, for 5½ weeks. 59 S. S. Total 59.

Dr. SARGENT and assistants. — Course in Practice. 1 Gr., 64 S. S. Total 65.

Requirements for Admission to Harvard College.

Down to the year 1872, the examination for admission to the Freshman Class of Harvard College covered studies which were prescribed for all applicants and were confined to the four departments of Latin, Greek, Mathematics, and History. The requirements in Latin and Greek comprised definitely named works in Prose and Poetry, together with Grammar, which was the subject of a separate examination in each language, and Prose Composition; those in Mathematics consisted of Arithmetic (including the

Metric System of Weights and Measures) and the use of Logarithms (the latter subject having been introduced in 1870), Algebra through Quadratic Equations, and Plane Geometry; those in History, as established in a somewhat augmented form in 1869, were the elements of Physical Geography, Ancient and Modern Geography, the historical and geographical notices found in the Greek and Latin text-books, and a short text-book on the History of Greece. The examination consisted of twelve parts, of which four were on the requirements in Latin, four on those in Greek, three in Mathematics, and one in History. An examination in reading English aloud was also, from the year 1866, a requirement for all students admitted to College, this examination taking place after admission, and prizes being awarded for excellence. An optional (anticipatory) examination was held, moreover, in the translation of French Prose; and all students who passed this examination satisfactorily were excused from the (otherwise) prescribed study of French.

In December 1870, the Faculty made a change in their system of requirements for admission, which went into effect at the examinations held in the summer of 1872. The elective principle was now, for the first time and to a very limited extent, applied to the conditions of admission, — a choice being allowed between two sets of requirements, designated as Courses I. and II. Course I. was composed of the studies which had previously been prescribed for all applicants; except that the use of Logarithms was at first omitted, but this subject was restored to Course I. in 1874. Course II. differed from Course I. in substituting advanced studies in Mathematics for a portion of the requirements in Latin and Greek. The requirement in History was the same in both Courses; and the examinations in Reading and in French remained unchanged. Under this system, the two Courses agreed in prescribing the *same subjects*, and the privilege of election was restricted to the question of *relative amount*. The student who sought to prepare himself for College by undertaking the more advanced work in Mathematics was still obliged to make as thorough a study of Latin and Greek Grammar as the classical student, and was excused only from Composition, and from a certain part of the reading of classical authors. "The preparation in the classics still demanded of the new class of candidates," says the Dean of the College Faculty, in his Report for 1870-71, "is substantially the same as that required at all other New England Colleges."

In the year 1872-73, considerable changes were made in the system of requirements; some of these going into effect in 1874, some in

1875, and some in 1876. In 1874, the general form of statement of the system was altered; the requirements in Latin, Greek, and History were modified; the use and the rudiments of the theory of Logarithms were added to Course I.; and English Composition was added both to Course I. and to Course II. In 1875, a requirement (the translation at sight of easy prose) in French or German was added to both courses. In 1876, a requirement in Physical Science was likewise added to both courses; option being allowed between (1) Elementary Botany, (2) the Rudiments of Physics and of Chemistry, and (3) the Rudiments of Physics and of Descriptive Astronomy. The examinations in Botany, Physics, and Chemistry involved tests of the training of the student in simple work of observation or experiment. The examination in Astronomy was on an easy text-book.

In 1876-77, a still further remodelling of the requirements was effected. A new method of gaining admission to College was now introduced; although it was at the same time announced that the previously existing method would be permitted as an alternative until after 1880. In the new system, the requirements were divided into two classes, called *minimum* and *maximum* requirements. The minimum requirements were in the departments of Latin, Greek, Ancient History and Geography, Mathematics, Physics, English Composition, and French or German; these requirements being prescribed for all candidates. The maximum requirements were in four departments: Latin, Greek, Mathematics, and Physical and Natural Science; and these were elective, every candidate being required to offer two. The introduction of this system involved, in the first place, an important change of form, which had the effect of allowing a considerably greater freedom of choice to teachers and students in preparatory schools. Instead of a mere option between a predominantly classical set of requirements on the one hand and a largely mathematical set on the other, an election was now allowed of any two among four groups of studies, one of these belonging to the field of observational science. There were also, however, changes in the substance of the requirements themselves. The minimum requirement in History was restricted to the study of small text-books in Greek and Roman History, all mention of Physical and Modern Geography being dropped, and no maximum requirement being provided in this department. The minimum requirement in Mathematics still included Arithmetic, Algebra, and Plane Geometry; but the scope of the requirement in Arithmetic was considerably restricted, with the object of discouraging a waste of time on unimportant portions of arithmetical text-books, which was then prevalent in many

schools; and the subject of Logarithms was again wholly dropped from the list of minimum requirements. The minimum requirement in Physics involved no experimental work, but was confined to the study of a manual; while the maximum requirement in Physical and Natural Science combined a further text-book study of Physics with either Chemistry or Botany, in which latter subjects a part of the work belonged to the laboratory. The most important change, however, was in the requirements in Latin and Greek, where translation at sight was for the first time brought forward into prominence, and the prescription of amounts was relegated to a second place. "To promote the introduction of better methods of teaching Latin and Greek, with the expectation that time would thus be gained which could be devoted to the newer subjects," was declared in the President's Report for 1876-77 to have been a leading motive of the Faculty in the establishment of the new system.

The present system of requirements for admission was established as the result of a discussion which occupied three years, — first in the then existing College Faculty, who adopted the system in March 1885, and then in the Corporation and the Board of Overseers, by whom it was adopted in May 1886. It first went into operation at the examinations held in the summer of 1887. In this system, the division between minimum and maximum studies is replaced by one between *elementary* and *advanced* studies. The elementary studies are in English, Greek, Latin, German, French, History, Mathematics, and Physical Science. These are prescribed for all applicants, except that either Greek or Latin and either German or French may be omitted. The advanced studies are nine in number; three of them being in the classical languages, one in German, one in French, two in Mathematics, one in Physics, and one in Chemistry. Of these nine studies, every applicant must present *two*. But an applicant who omits elementary Greek or Latin must replace such omitted study by *two additional* advanced studies, of which one must be in Mathematics and the other either in Mathematics, Physics, or Chemistry; and an applicant who omits elementary German or French must replace it by *one* additional advanced study. Thus, the number of advanced studies required of a candidate varies from two to five, accordingly as he presents all the elementary studies or omits some of them; *four plans of election*, designated in the Catalogue by the letters *a, b, c, d*, being open to him.

At the same time with the establishment of this framework of mixed prescription and election, the requirement in English was increased; the elementary requirement in each of the other languages was made

the translation at sight of simple (or, in the case of French, of ordinary) prose, with questions (in Latin and Greek) on the usual forms and ordinary constructions; the elementary requirement in History included Historical Geography, and offered an alternative between (1) the History of Greece and Rome and (2) that of the United States and of England; that in Mathematics no longer named Arithmetic, but was otherwise unchanged; and that in Physical Science offered an alternative between (1) certain text-books in Astronomy and Physics and (2) a course of experiments in Physics, preference being indicated for the latter alternative.

The question most prominently before the Faculty in the discussion which led to the adoption of this system was that of so far extending the application of the elective principle to the examination for admission as to accept certain substitutes for even the minimum examination in one of the two classical languages (ordinarily Greek). The result of this discussion was an agreement to accept, in place of the omitted language, a considerable amount of scientific study, including some advanced Mathematics; and not to accept for this purpose any study of Modern Languages or of History. Indeed, no advanced study in History was proposed; nor was any provision made even for presenting both the alternatives in elementary History. The conclusion thus arrived at was a compromise between opposing views, adopted as the best settlement then attainable of a difficult and far-reaching question. The matter was one, however, concerning which the progress of thought and experiment could not fail to lead to new developments of opinion; and a revision of the system after several years has been always regarded by the Faculty as probable, and has indeed of late on all sides, on one ground or another, been recognized as desirable. Since the adoption of the present system, many Conferences on the subject of admission requirements have been held between the Faculties of different Colleges and Universities; and the important Report of the Committee of Ten has reopened the whole matter, and brought to bear upon it much new information and discussion.

Requirements for Admission to the Scientific School.

There were in the beginning no formal requirements for admission to the Lawrence Scientific School. In the early years of the School, most of its students were adult men,—in many instances college graduates,—who came to the School for purposes of advanced special study, and were received into the lecture-rooms and laboratories of professors with whom they wished to work, on presenting

satisfactory, though informal, evidence of qualification. Gradually, it was found necessary to lay down some conditions of admission to the several courses of study offered in the School; and there has been, for a considerable period of years, a solid body of requirements for admission, varied somewhat for these different courses of study. The total amount of the requirements for any one student entering the School is decidedly less than for admission to Harvard College; and the Administrative Board of the School has long felt the importance, as the Report of the Dean of the School for 1895-96 intimates, of gradually bringing its requirements up to the College level.

Revision of the Requirements for Admission.

Believing the time to be ripe for entering on the consideration of the two important questions which are above indicated: namely, the revision of the requirements for admission to Harvard College, and the increase and better adjustment of those for the Lawrence Scientific School; the Faculty, 18 December 1894, voted that a special Committee of eleven members on Requirements for Admission be appointed.

The President accordingly appointed as the committee Professors C. L. Smith (chairman), W. M. Davis, and G. L. Kittredge, Assistant Professors F. C. de Sumichrast, E. H. Hall, H. K. Schilling, A. B. Hart, M. H. Morgan, and M. Bôcher, and Instructors J. Torrey and C. B. Davenport.

This Committee, having devoted nearly two years to a faithful, able, and thorough examination of the subject referred to them, presented their First Report at a meeting of the Faculty held 27 October 1896. They had found it advisable to separate the field of inquiry submitted to them into two main divisions; the first comprehending the *Definitions* of the studies in which it was proposed that admission examinations be held, with a full specification of the objects held in view by the Faculty in each study; the second embracing the *Terms of Admission*, that is, the system under which various combinations of studies might be offered by students seeking to enter either the College or the Scientific School.

The First Report of the Committee related to the former of these fields, that of Definitions of Requirements. A Second Report, on Terms of Admission to Harvard College, was presented 10 November 1896; a Minority Report, on the same subject, 1 December 1896; a Special Report, modifying the First, 1 December 1896; a Third Report, on Requirements for the Scientific School, 19 January 1897;

a Revised Second Report, 1 June 1897; a Revised Minority Report, 8 June 1897; and Definitions of Requirements, corrected in accordance with provisional votes of the Faculty, 8 June 1897. From this enumeration of the formal communications made by the Committee to the Faculty, it will be seen that a large amount of time and attention was devoted to the subject of Requirements for Admission by both the Committee and the Faculty during the whole course of the academic year. It was, indeed, under consideration in the Faculty at twenty stated and three special meetings, and it engrossed the greater part of the time of session at many of these meetings.

In the course of this discussion, the Faculty considered in minute detail all the recommendations of the Committee relative to the Definitions of Requirements, and also those relative to Terms of Admission to the Lawrence Scientific School. The first positive action of the Faculty was on the last-named subject, and was taken 28 March 1897. The system of requirements then adopted, with the reservation for later consideration of certain matters of detail, is substantially the same as that recommended by the Committee, 19 January 1897. I leave to the Dean of the Lawrence Scientific School the task of presenting in his report, if he shall deem it desirable to do so, a detailed statement of the new system. It is, however, proper for me to remark, from the general point of view of the Faculty, that two objects have been held in view in laying down the lines of the new system. The first object is to increase year by year the requirements for admission to the Scientific School, till they are fully equivalent, in the sum total of training implied, to those for admission to Harvard College, and furnish a thoroughly sound basis for the kind and grade of work which the School seeks to do. The second object is to encourage and stimulate the already growing development in secondary schools of instruction in experimental and observational science, in drawing, and in manual work, by giving to studies in these fields a due degree of prominence among those which may be offered in satisfaction of the requirements for admission to the Scientific School. It is believed that the value and reputation of the School will be greatly enhanced in the future by these changes.

On the subject of the Definitions of Requirements, — these having already been provisionally approved or amended in detail, — the Faculty concluded their deliberations, 22 June 1897, by voting to adopt and publish the statement then finally presented to them by the Committee, which embodied the amendments previously made to the First and Special Reports of the Committee; reserving, however, the power to make changes in any of the Definitions at any time

before the final adoption of the plan of admission requirements as a whole, and under certain special reservations with regard to a few subjects. In accordance with this vote, the new Definitions were issued to the public, 30 July 1897, under the editorship of the chairman of the Committee, Professor Clement Lawrence Smith.

At the same meeting of the Faculty, 22 June 1897, it was further voted, on recommendation of the Committee, to resume the consideration of the subject of Requirements for Admission to Harvard College at the beginning of the current academic year; and in that discussion the Faculty is now engaged, the places filled in the Committee by Professor Smith and Assistant Professor Schilling, who have leave of absence from the University for the current year, being filled by Professor J. H. Wright and Assistant Professor H. C. G. von Jagemann, and Professor E. H. Hall being the present chairman of the Committee.

The following prefatory note, prefixed to the "New Definitions of Requirements," affords a concise and convenient statement of the progress made up to the close of the year 1896-97, in the consideration of the subject of Admission Requirements:—

"During the past year the Faculty has been engaged on a revision of the requirements for admission to Harvard College and to the Lawrence Scientific School. In a few of the studies of the present list no change is proposed; in most, the definition of the requirement has been carefully revised. Several new studies have been added to the list, some of which will be accepted for admission either to the College or to the Scientific School, some for admission to the Scientific School only. A portion of the studies will be elective as at present.

"In the examinations of 1898, and thereafter until the new definitions shall be exclusively in force, alternative papers will be offered under the new definitions (where they differ materially from the present definitions) in Greek, Latin, German, French, History, Mathematics, Physics, and Chemistry.

"In formulating a new statement of the terms of admission it is the purpose of the Faculty to assign to each study a certain number of points, representing the relative weight which that study will have in determining the question of a candidate's fitness for admission, and to state the total amount of the requirement for admission in the form of a fixed aggregate of points which may be made up by various combinations of studies under regulations to be announced hereafter.

"In framing the new terms of admission to Harvard College the Faculty does not intend to increase the total amount of work required in preparation."

Instruction by Doctors of Philosophy or Science.

In my last Report, I mentioned a recommendation made by the Faculty to the Corporation in favor of the authorization of any Doctor of Philosophy or Science, approved for the purpose by the department with which his work is most closely related, to give instruction, of a grade suited to Graduate Students, under the direction of the Faculty of Arts and Sciences. The Corporation, in conformity with this recommendation, adopted the following vote, on the eleventh of January 1897:—

Voted, That, until further order of the President and Fellows, any Doctor of Philosophy or of Science who shall be approved for the purpose by the department with which his work is most closely related may be authorized by the Faculty of Arts and Sciences, for a period not exceeding four months, to give instruction under the direction of the Faculty, either gratuitously or for such fees as he himself may fix and collect.

Fellowships and Scholarships.

A part of the business of the Faculty consists in making nominations to the Corporation, or in some cases to special trustees, for fellowships and scholarships in the three departments of the University which are under the charge of the Faculty. These nominations, as well as the admission of students and the recommendation of students for degrees, are among the matters which the Faculty has reserved to itself by special vote, not committing them to its Administrative Boards. It is left, however, to the Deans of the several departments to report on these subjects, which are closely connected with their administrative work.

The Whiting Fellowships.

Harold Whiting, a graduate of Harvard College of the year 1877, a Doctor of Philosophy of this University of 1884, for some years a member of the Faculty of Arts and Sciences, and afterwards Associate Professor of Physics in the University of California, was lost at sea, 27 May 1895. His whole family, consisting of his wife and four children, perished with him. His will, dated 30 July 1894, bequeathed to the President and Fellows of Harvard College twenty thousand dollars, for the purpose of establishing and maintaining one or more fellowships to be given to students of Physics in the Graduate School. The Corporation have established accordingly three Whiting Fellowships, having an annual income of three hundred dollars each, to be bestowed in conformity with the directions of their founder. These fellowships have been awarded, for the current academic year.

Appointment Committee.

The work of recommending graduates and students of Harvard University for positions as teachers was first systematically undertaken by the late Frank Bolles, then Secretary of the University, and carried out with the generous zeal and clear judgment for which he was ever noted. After Mr. Bolles's sudden and lamented death, this important field of activity still found laborers willing to devote to it a large amount of time and thought. The work has, however, increased to such a volume that it has long been manifestly beyond the power of any single official, already burdened with other work, and giving to this only the attention he could spare from more primary duties. The establishment of a large Committee and of an organized system of registration had become clearly necessary.

On the ninth day of March 1897, on motion of Professor John Williams White, the Faculty voted that a Committee be appointed to report a plan for the organization of an Appointments Bureau similar to that of the University of Oxford; and the President named as that Committee Professors J. W. White (chairman), G. H. Palmer, W. E. Byerly, and L. B. R. Briggs, and Assistant Professors H. C. G. von Jagemann, C. Gross, and A. A. Howard. The Committee presented a report, 6 April 1897, recommending the institution of a permanent Appointment Committee, and embodying regulations for its government; and the Faculty adopted this report, 13 April 1897.

The President named the following persons, 27 April 1897, as members of the Appointment Committee: — Professor J. W. White (chairman), Instructor B. S. Hurlbut (secretary), Professors J. K. Paine, C. H. Moore, F. W. Putnam, G. H. Palmer, W. G. Farlow, C. L. Jackson, W. M. Davis, W. E. Byerly, C. R. Lanman, E. L. Mark, E. H. Hall, D. G. Lyon, I. N. Hollis, F. W. Taussig, J. E. Wolff, A. B. Hart, and G. L. Kittredge, and Assistant Professors F. C. de Sumichrast, H. C. G. von Jagemann, and A. R. Marsh.

The work thus initiated is now taking shape in the hands of the Committee, and will undoubtedly lead to better modes of communication between the Faculty and such persons or bodies as may apply to it for information on the subject of appointments. The Committee has moreover been instructed to broaden its functions so as to include other positions than those of teachers.

JAMES MILLS PEIRCE, *Dean.*

THE COLLEGE.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,— I have the honor of making my report on the condition of Harvard College during the academic year 1896-97.

The number of students at the beginning of the year was seventeen hundred and fifty-four:—

Seniors	328
Juniors	377
Sophomores	473
Freshmen	416
	<u>1594</u>
Special Students	160
	<u>1754</u>

Compared with the figures of the preceding year, these figures show a loss of eighteen:—

	Gain.	Loss.
Seniors . . . . .	..	88
Juniors	39	..
Sophomores	28	..
Freshmen . . . . .	..	46
Special Students . . . . .	..	1
	<u>67</u>	<u>85</u>
		<u>18</u>
Net loss		18

Two students died before the end of the College year, and two in the summer vacation.

Three hundred and eighty-three persons, of whom fifty-nine were not registered as Seniors, received in June, as members of the graduating class, the degree of Bachelor of Arts. The losses and the gains in the three younger classes between November, 1896, and November, 1897, may be learned from the following tables:—

	November, 1896.	Loss.	Gain.	November, 1897.
Class of 1898 . .	(Juniors) 377	85	50	(Seniors) 342
Class of 1899 . .	(Sophomores) 473	140	53	(Juniors) 386
Class of 1900 . .	(Freshmen) 416	83	112	(Sophomores) 445
		<u>308</u>	<u>215</u>	
Net loss in the three classes between Nov., 1896, and Nov., 1897 93*				

* Twenty-six more than in 1896.

	Class of 1898.	Class of 1899.	Class of 1900.	Total for three classes.
Losses.				
Left College before the end of the year . .	14	20	25	59
Left College at the end of the year . . .	45	12	10	67
Were "dropped" and left College	1	16	7	24
Entered a lower class	11	61	10	102
Entered a higher class	14	31	11	56
Total loss	85	140	83	308
Gains.				
From higher classes	5	11	68	84
From lower classes	25	11	0	36
Newly admitted	20	11	44	95
Total gain	50	33	112	215
Net loss	35	87	11	93
Net gain	0	0	29	0

The large number of "dropped" Freshmen, the largest since 1890, is in part accounted for by the peculiar character of the class of 1900, which contained perhaps more high scholars, and certainly more low ones, than any other class for some years; yet the fact that, with all the care now bestowed on Freshmen, thirty-seven can be dropped, shows our method with these inexperienced persons to be still defective. The dismissal of half a dozen picked loafers at Christmas would be wholesome for the loafers and for the entire class; yet our early tests of work are so inadequate for youths unaccustomed to College methods that it is hard to tell promptly which Freshmen should go. Any man who has looked at Freshmen for years can judge much by their faces; but such a principle of selection is not unerring, and might not commend itself to parents. When the marks for the first half-year come in, the April Examinations are but two or three weeks ahead; when the marks for these examinations come in, the Final Examinations are close upon us; and when the marks for the year come in, the members of the Board are too widely scattered for concerted action. The "dropped" Freshman comes back if his father lets him come, and, though a Freshman still, receives from his former classmates all the social privileges of a Sophomore, — privileges higher, perhaps, than if he had given less of his first year to society and more to work. To the newly admitted Freshman who means, after the long pull of prepara-

tion, to rest on his oars, the joy of idleness is immediate, the reward of industry remote. His head is turned by a new freedom, by the complacent discovery that he is a "man." Numbness or blindness, which has been called "the Freshman daze," invades part of the class like a disease. In such cases nothing but adversity will restore thought and sight; and it is well if adversity does not come too late.

Some years ago a Freshman was only a provisional member of the University until matriculated, and was not matriculated until he had done some respectable College work. In the first part of the first year, he had to show why he should stay in the University, — to pass muster with the Faculty or go home. It has been suggested that the principle of thus throwing the burden of proof on the Freshman — of requiring a decision in his favor, to keep him in, rather than a decision against him, to put him out — might be wisely applied at the end of the half-year. Both success and adversity might thus look near enough to be stimulating; and the Freshman who did not pass muster would still have time for work which, performed in banishment, might eventually restore him to his class. Such a plan would have the further advantage of making the most coveted social distinctions, which tempt youths to idleness, dependent in part on industry; for a First Ten could not conveniently be formed of refugees and exiles.

Of the thirty-seven Freshmen dropped last year, one had come from another college, three from private tutors, four from academies, four from public Latin schools, five from public high schools, and twenty from private day or boarding schools; the largest contingent from a single school is five. The relative merit of schools, however, cannot fairly be estimated from these figures. Freshmen from one school have stronger temptation to loaf than those from another, not because their school is less efficient, but because its constituency is more fashionable.

The next table shows the losses and the gains in the number of Special Students since December, 1896: —

In attendance, December, 1896	160
Left College before the end of the year	25
Left College at the end of the year	50
Entered a College class	84
Total loss	<u>109</u>
Reentered College as Special Students, 1897	51
Newly admitted	118
Total	<u>164</u>
Net gain	4

The Freshman class is much larger than in 1896, and somewhat larger than in 1895:—

Admitted by examination in 1897	409
Admitted by examination before 1897	23
From a higher class	32
“ the Special Students	6
“ Lawrence Scientific School	1
Total	<u>471</u>

The foregoing tables show a gain of fifty-four over the year 1896, and a gain of thirty-six over the year 1895.

Thirty-three persons who took in June some of their Final Examinations for admission did not take the remainder in September. Besides these, five hundred and seventy-one (thirty-eight more than in 1896) took Final Examinations. Of the five hundred and seventy-one, four hundred and twenty-one already had Preliminary certificates; eighty-seven divided the examinations between June and September; thirty-four took all their examinations in June; and twenty-nine took all in September. The June candidates were unusually strong; and the June percentage of rejection fell from fourteen and a half (in 1896) to less than eight: the September candidates, though somewhat better than in 1896, showed the customary September weakness:—

	Admitted.	Admitted "Clear."	Rejected.
June	401	194	84
September	99	■	37
Total	<u>500</u>	<u>208</u>	<u>71</u>

The five hundred and seventy-one candidates chose their plans of admission as follows:—

Plan (a): All the Elementary Studies and at least two Advanced Studies; sixteen hours of examination	204
Plan (b): All the Elementary Studies except either German or French, and at least three Advanced Studies; seventeen hours of examination	308
Plan (c): All the Elementary Studies except either Greek or Latin, and at least four Advanced Studies, including Advanced Mathematics; eighteen hours of examination	50
Plan (d): All the Elementary Studies except either German or French and either Greek or Latin, and at least five Advanced Studies, including Advanced Mathematics; nineteen hours of examination	<u>9</u>
	571

Plans (b), (c), and (d) have each gained at the expense of plan (a), though plan (a) still attracts more than one-third of the candidates, plan (c) less than one-eleventh, and plan (d) less than one-sixtieth. More than half choose plan (b); plan (b), too, shows the smallest percentage of failure:—

	Admitted.	Rejected.	Percentage of Failure.
Plan (a)	182	22	10.8
" (b)	281	27	8.76
" (c)	34	16	32.
" (d)	8	■	66.66
	<u>500</u>	<u>71</u>	

Of the five hundred and seventy-one candidates, three hundred and forty-five offered Ancient History rather than Modern; two hundred and nineteen, Modern rather than Ancient; and seven, both Ancient and Modern. Three hundred and twelve—a smaller proportion, and a somewhat smaller number, than in 1896—offered Experimental rather than Descriptive Physics. In Advanced Studies, as the table of their relative attractiveness will show, Latin Composition, French, and Chemistry have gained higher places than they held last year:—

1895.	1893 and 1896.	1897.
1. Latin.	Latin.	Latin.
2. Greek.	Greek.	Latin Composition.
3. Latin Composition.	Latin Composition.	Greek.
4. Greek Composition.	Greek Composition.	French.
5. French.	French.	Greek Composition.
6. German.	Solid Geometry.	Solid Geometry.
7. { Solid Geometry.	Log. and Trig.	Log. and Trig.
8. { Log. and Trig.	German.	{ German.
9. Chemistry.	Chemistry.	{ Chemistry.
10. Algebra.	Algebra.	Algebra.
11. Analytic Geometry.	Analytic Geometry.	Analytic Geometry.
12. Physics.	Physics.	Physics.

The next table gives the details on which the foregoing table is based. In general, the percentages are much like those of last year.

Number of candidates offering	1895.		1896.		1897.	
	Per cent.		Per cent.		Per cent.	
Advanced Greek	374	67	325	61	332	58.1
Advanced Latin	463	83	441	83	474	83.1
Greek Composition	295	53	278	52.1	302	52.8
Latin Composition	344	61	317	59.4	354	61.9
Advanced German	79	14	85	16	98	16.2
Advanced French	203	36	256	48	303	53.06
Logarithms and Trigonometry	77	13	96	18	107	18.7
Solid Geometry	77	13	122	23	128	22.4
Analytic Geometry	10	1.8	16	3	18	3.1
Advanced Algebra	17	3	41	7.6	51	8.9
Advanced Physics	3	0.3	7	1.3	9	1.5
Chemistry	57	10	67	12.5	93	16.2

The next two tables show, for each study, the percentage of failure (*A*) in the complete records of the candidates, including the records of their successful Preliminary Examinations, and (*B*) in their records at Final Examinations only:—

(<i>A</i>)	1892.	1893.	1894.	1895.	1896.	1897.
ELEMENTARY STUDIES.						
English	17	13	9.5	9.2	8	10.9
Greek	6	7	6.5	5	9.7	5.4
Latin	4	7.5	4	2.5	6.8	4.5
German	35	11	22	11	11.2	24.9
French	10	8	7	3	9.8	5.1
History (Ancient)	24	10.5	6	5	4.8	9.09
History (Modern)	19	12	12.5	10.2	11.0	17.1
Algebra	12	10	12.5	14.8	17.4	16.04
Plane Geometry	22	20	25	15.6	23.1	15.02
Physics (Descriptive)	44	30	34	41	43.1	28.7
Physics (Experimental)	11	17	15	11.6	14.1	16.9
ADVANCED STUDIES.						
Greek	8	13	17	13	16.1	7.5
Latin	16	19	11	23.7	24.5	19.1
Greek Composition	24	27	17	19.3	21.6	22.3
Latin Composition	9	9	19	12.5	19.2	14.1
German	26	11	16.7	17.7	23.2	32.2
French	14	21	18	7.3	23.8	15.5
Logarithms and Trigonometry	34	40	23	36.3	42.7	27.1
Solid Geometry	23	32.5	33.5	21.1	40.2	30.1
Analytic Geometry	29	33.5	16.7	30	50	27.7
Algebra	43	11	26	30.5	30.5	24.5
Physics	11	50	33.3	0	57.1	33.3
Chemistry	8	3.5	4	7	14.3	16.1

(B) ELEMENTARY STUDIES.			ADVANCED STUDIES.		
	1896.	1897.		1896.	1897.
English	8.6	16.06	Greek	16.3	7.7
Greek	25.1	14.7	Latin	26.	26.3
Latin	15.8	13.8	Greek Composition . .	29.1	33.4
German	33.3	36.8	Latin Composition . .	27.5	20.5
French	21.5	13.5	German	33.3	33.7
History (Ancient) . .	13.4	17.9	French	29.1	20.1
History (Modern) . .	18.2	22.66	Log. and Trig. . . .	43.9	30.
Algebra	34.8	32.1	Solid Geometry . . .	41.3	37.06
Plane Geometry . . .	31.1	30.4	Analytic Geometry . .	50	33.3
Physics (Descriptive) .	45.9	30.	Algebra	42.8	39.5
Physics (Experimental)	18.2	15.9	Physics	66.7	55.5
			Chemistry	14.3	17.4

Five hundred and fifty-nine candidates (three less than in 1896) took Preliminary Examinations, of whom four hundred and sixty-five (fifteen more than in 1896) received certificates:—

Number of candidates who received certificates for examinations occupying	1892.	1893.	1894.	1895.	1896.	1897.
Less than five hours . . .	4	2	7	6	2	3
Five hours	53	49	50	56	56	61
Six "	74	88	55	52	80	66
Seven "	77	90	60	75	74	33
Eight "	84	75	100	89	98	80
Nine "	48	55	74	68	54	102
Ten "	18	20	24	17	30	28
Eleven "	6	11	11	20	32	18
Twelve " . . . . .	..	6	5	3	10	6
Thirteen "	1	..	2	3	2	3
Fourteen " . . . . .	..	..	..	1	1	5
Fifteen " . . . . .	..	..	..	..	1	..
Sixteen " . . . . .	..	..	..	1	..	..
Received certificates . .	363	404	419	467	450	466
Failed	78	73	82	82	112	94
Total number of candidates	460	467	501	469	562	559

In 1891, 1892, and 1893, the commonest number of hours for a Preliminary certificate was seven; in 1894, 1895, and 1896, it was eight; and in 1897 it was nine. The figures are, doubtless, some-

what affected by the reopening of English as a Preliminary subject in 1895, and the change of English from a one-hour to a two-hour subject in 1896.

The percentages of failure in Preliminary Studies are still, for the most part, deplorably large : —

ELEMENTARY.			ADVANCED.		
	1896.	1897.		1896.	1897.
English	31.6	24.1	Greek	43.7	33.3
Greek	18.	11.4	Latin	30.6	43.3
Latin	15.7	21.	Greek Composition . .	34.7	21.3
German	33.3	31.9	Latin Composition . .	37.6	22.5
French	21.6	23.5	German	30.	5.
History (Ancient) . .	18.5	21.4	French	40.	21.2
History (Modern) . .	35.8	30.3	Log. and Trig.	31.3	40.
Algebra	27.5	24.6	Solid Geometry	32.	45.4
Plane Geometry . . .	28.4	24.2	Analytic Geom	*00	Not offered
Physics (Descriptive) .	42.3	39.1	Algebra	66.6	100.
Physics (Experimental)	18.1	13.6	Physics	Not offered	
			Chemistry	16.	18.1

In printing statistics of "Credits" won at the examinations for admission to College, I give (A) the "Credits" won this year at Final Examinations; (B) those won last year and this year by the Final candidates of this year; and (C) those won this year at Preliminary Examinations : —

(A) ELEMENTARY STUDIES.			ADVANCED STUDIES.		
	June.	Sept.		June.	Sept.
English	13	5	Greek	11	2
Greek	4	13	Latin	36	3
Latin	7	15	Greek Composition . .	5	1
German	7	12	Latin Composition . .	12	0
French	8	10	German	5	5
History (Ancient) . .	0	0	French	12	6
History (Modern) . .	0	0	Log. & Trig.	1	0
Algebra	7	11	Solid Geometry	7	3
Geometry	11	1	Analytic Geometry . .	0	0
Physics (Descriptive) .	1	6	Algebra	0	0
Physics (Experimental)	24	3	Physics	1	0
			Chemistry	3	6
	95	76		129	26

* Four candidates only.

(B) ELEMENTARY.		ADVANCED.	
English	20	Greek	44
Greek	40	Latin	41
Latin	110	Greek Composition	6
German	41	Latin Composition	13
French	31	German	16
History (Ancient)	22	French	23
History (Modern)	1	Log. and Trig.	1
Algebra	63	Solid Geometry	12
Geometry	29	Analytic Geometry	1
Physics (Descriptive)	8	Algebra	2
Physics (Experimental)	49	Physics	1
		Chemistry	14
	422		174

(C) ELEMENTARY.		ADVANCED.	
English	0	Greek	1
Greek	58	Latin	0
Latin	106	Greek Composition	6
German	27	Latin Composition	11
French	26	German	4
History (Ancient)	6	French	10
History (Modern)	0	Log. and Trig.	1
Algebra	89	Solid Geometry	1
Geometry	5	Analytic Geometry	0
Physics (Descriptive)	0	Algebra	0
Physics (Experimental)	11	Physics	0
		Chemistry	3
	328		37

The temptation of Preliminary candidates, at the last moment and under irresponsible advice, to become "Postponing" candidates on their own authority, and the worse temptation of boys whose teachers have judged them unfit for Preliminary Examinations to announce themselves as "Postponing" candidates offered by professional "coaches," led the Faculty in November, 1896, to a reasonable restriction of "Postponing." A "Postponing" candidate must now be offered as such by the head-master of the school in which he began the school year, and must present from the headmaster a certificate: —

" . . . has been my pupil for — years. He offers himself for admission to Harvard College this year with my consent and approval, postponing part of the examination until September. He will present himself for examination in June in the following studies: . . ."

This certificate is not, like the corresponding certificate of a Preliminary candidate, a sort of warrant from the teacher that the boy is fit to pass the examination in every subject named. "Postponing" implies disturbance in the usual machinery of preparation and, therefore, less confidence of success. All that the Faculty can justly demand is evidence that the candidate is not hastily staking his chances, but is acting deliberately, with the approval of the man who ought to be the best judge of what he can do. The school-master whose injustice is implacable, if such there be, may still be happily circumvented by any boy that can be fitted to take all his examinations together.

In November the Faculty received a noteworthy communication from the Board of Overseers: —

"That, in the judgment of the Board of Overseers, every candidate for admission to the undergraduate departments of the University should give evidence that he can write the English language with such degree of neatness and skill in penmanship, correctness in spelling and grammar, and with such facility of expression, as will enable him to enter, without further elementary instruction, on the elective studies to which he proposes to devote himself, including the more advanced courses in English composition.

That the Faculty be requested to press steadily on towards the attainment of the desired end."

The only ripe fruit of this request is a vote of the Faculty, passed on June first: —

"Clear and idiomatic English is expected in all examination papers and note-books written by candidates for admission. Teachers are requested to insist on good English, not only in translations, but in every exercise in which the pupil has occasion to write or to speak English."

To "expect" all this might seem inexperienced; but to hold it up as an ideal is reasonable and helpful. With any approach to this ideal, an examination in English Composition must be abandoned as outgrown. The present examination is outgrown already. The requirement in English was devised at Harvard College when English was ignored or sadly neglected in many schools; and, with one modification or another, it has spread from college to college, and been adopted at conference after conference. As a leaven of school and college it has done good work; but neither in theory nor in result can it be regarded as furnishing a sound test in English Composition. In English Literature and in Rhetoric an examination might do; but the need for everybody of a working mastery of his own language is now so generally recognized that it is time to abandon an

examination which implies that English Composition is a subject by itself. It is time to count a candidate's use of English in all subjects, in deciding whether he shall be admitted to College or not; and whether, if admitted, he shall be obliged to make a special study of English Composition.

At the beginning of the academic year, the Faculty discharged the Committee on Graduation in less than Four Years, and imposed the duties of that committee on the Administrative Board of Harvard College, to which they naturally belong. The Board has no power to permit graduation in three years: it merely sifts the cases of applicants and recommends to the Faculty those which show a fair claim. A fair claim is based on the prospect of completing in three years the required number of courses, with distinction.

For the first time, the Faculty printed the names of holders of scholarships in a group of highest distinction, a group of distinction, and a group of merit supported by "special claim." In former years the list of names has been a sort of rank list, class by class, of those students who have needed and earned scholarships in money. Their names, as a rule, have been followed in each class by the names of a few persons to whom scholarships in money have been awarded on the ground of "special claim" (such as descent from a member of the class of 1802; intent to enter the ministry of the Protestant Episcopal Church; being "sent from Petaquamscot aforesaid, English or Indians if any such there be"). The new plan puts into the first group, in alphabetical order, the names of the highest scholars of the preceding year, irrespective of financial need, of relative rank, and of the differences between Sophomore and Senior. The second group contains, in alphabetical order, the names of other high scholars who hold scholarships in money; the third group, the names of students who hold scholarships in money on the ground of "special claim." A position in the third group is creditable, but consistent with mediocrity.

The name "John Harvard" for a scholarship "without stipend" is carefully guarded; and except in the question who needs and who does not need College aid, the Faculty recognizes no difference between the John Harvard scholar and any other scholar of the first group: each has done, in the greater part of his studies, such a year's work as, for a man at his stage of development, may fairly be called distinguished; and each is accordingly entitled to the highest reward of intellectual success that is given to an undergraduate.

CLASS.	NAME.	SCHOLARSHIP.	HOME.	SCHOOL.
'98	Frederick Sherman Arnold	Matthews	Poughkeepsie, N. Y. .	Poughkeepsie Military Academy.
'97	Henry Williamson Beal	Price Greenleaf	Danvers	Phillips Academy, Andover.
'97	Charles Ernest Brown	"	Shortsville, N. Y. . .	Canandaigua (N. Y.) Academy.
'97	Arthur Alexis Bryant	"	Cambridgeport	Worcester Academy.
'98	Almy Morrill Carter	John Harvard	Woburn	Woburn High School.
'98	William Edwin Dorman	Price Greenleaf	Lynn	Berkeley School, Boston.
'99	Alfred Lawrence Fish	"	Sandwich	Sandwich High School and Self-
'98	Samuel Tufts Frost	"	Boston	Boston Latin School. [preparation.
'98	Perley Gardner	John Harvard	Exeter, N. H.	Phillips Academy, Exeter.
'98	Francis Paul Garland	Class of 1856	Somerville	Somerville High School.
'97	Henry Seavey Hackett	John Harvard	New York, N. Y. . . .	Berkeley School, New York.
'98	William Henry Paine Hatch	Matthews	Pennaville, N. J. . . .	Trinity College.
'97	Henry Barrett Huntington	"	Hanover, N. H.	St. Paul's School, Concord, N. H.
'99	Eldred Edward Iungerich	John Harvard	Philadelphia, Pa. . . .	Lawrenceville School.
'97	Frederic Thomas Lewis	Price Greenleaf	Cambridge	Cambridge Latin School.
'98	Guy Newhall	Class of 1856	Lynn	Lynn High School.
'97	Robert Edwin Olds	Richard Augustine Gambrell, .	St. Paul, Minn.	St. Paul High School.
'97	Winfred Horton Osborne	Price Greenleaf	Fayetteville, N. Y. . .	Phillips Andover.
'98	Hazen Pierce Philbrick	"	Cambridgeport	Portsmouth (N. H.) High School.
'97	Charles Alfred Weatherby	John Harvard	St. Paul, Minn.	Collins St. Class. Sch., Hartford, Conn.
'97	Edgar Huidekoper Wells	"	Boston	Hopkinson's School.
'97	Beekman Winthrop	"	New York, N. Y. . . .	F. K. Kelham, Tutor.
'99	Frederick Wesley Wyman	"	Sbirley Centre	Roxbury Latin School.

For the year 1896-97 the first group, as the accompanying table shows, contains the names of twenty-three persons, of whom eight are John Harvard scholars. As the establishment of John Harvard Scholarships did not commend itself to the Faculty till June 2, 1896 (after the Final Examinations had begun), it cannot have influenced materially the undergraduates of that academic year: it took them as it found them; and it found that one third of our highest scholars had not applied for College aid.

Whoever examines the table either to learn which is the best preparatory school, and whether private schools do better work than public, or to strengthen a preconceived notion on either of these subjects, will find little to comfort him. The most interesting thing in the table is the variety in the modes of preparation that it represents. The twenty-three students stand for twenty-two kinds of preparatory work, in which the smaller college, the public high school, the public Latin school, the city academy, the country academy, the military academy, the Church school, the city private school, the private tutor, and the country high school supplemented by self-preparation, are each worthily represented. Only Phillips Academy of Andover is represented twice; and of its two representatives one was properly a member of the class of 1895 in Harvard College who came back to finish with the class of 1897 a course that had been necessarily interrupted: among the members of the first group who entered College with the classes in which they were registered last year, no two came from the same school. The theory of shelter from the world, the theory of responsibility through freedom, the theory of the same routine for everybody, and the theory of the personally conducted may each say something for itself as judged here by its fruits.

If the schools are notably many, the states represented are notably few: Massachusetts contributes twelve; New York, five; New Hampshire, two;* Minnesota, two; New Jersey, one; and Pennsylvania, one. I present these statistics as interesting, though I am aware that one year's record for twenty-three men is not a sound basis of generalization.

Logic and justice seem to demand an extension of the principle recognized in the first group. Since even in the second group none but excellent scholars find a place, the privileges of this group should not be confined to students who need College aid. I suggest that the names of all undergraduates whose rank equals that of

* Perhaps New Hampshire should be credited with three and Massachusetts with eleven.

students now named in the second group be printed in this group, irrespective of financial need, in alphabetical order; and that members of this group who receive no scholarships in money be known as "Harvard College Scholars." Since a position in the third group implies no distinction, the second group fixes a natural limit to what may be called the John Harvard principle.

The members of the Administrative Board of Harvard College for 1896-97 were: The Dean of the College; Professors Bartlett, de Sumichrast, White, Royce, Gross, Schilling, Grandgent, Osgood, and Baker; Doctors Torrey, Coolidge, Davenport, and Gulick; and Messrs. Nichols and Hurlbut. Several changes in the membership of the Board are made each year; but the Dean, the Regent, the chairman of the Freshman Advisers, and the chairman of the Committee on Special Students are members *ex officio*.

In the course of the year, the Faculty dismissed for dishonorable or otherwise disgraceful conduct, two Juniors and three Sophomores; the Board closed the probation of one Sophomore and eight Freshmen, and suspended one Junior, one Sophomore, and one Freshman. One Junior, six Sophomores, six Freshmen, and eight Special Students were persuaded or required to leave College.

The policy of posting the name of a student who "hands in written work not his own" was discussed again, in the reorganized Board, reaffirmed, and announced to the students. Its effect cannot yet be accurately judged; but there is little doubt that it has made many students think and has headed off a certain amount of cheating. Two or three suspicious cases were reported to the Board, but not one convincing case of dishonesty.

Want of clearness in suspicious cases results in great measure from the differing practices of instructors. One instructor calls for a "report" or "thesis" which is avowedly little more than a compilation from books reserved in the Library for students in his course; another demands work based on such books, but original in language and form: one encourages, another discourages, "working together" in problems. A clear understanding of the demands in each course is of the first importance, and may be effected only by peculiar care on the part of the instructor. When this understanding is secured, the policy of posting, repellent as it is, I believe to be the policy most likely to educate public opinion. The very opposition it may encounter in a concrete case, — the discussion it is sure to provoke, — will force the undergraduate public to think; and even the undergraduate public, when forced to think about the rela-

tion of illegitimate copying to recognized forms of cheating and lying, can reach but one conclusion — that, so far as a student engages in illegitimate copying, so far he cheats and lies.

In June, 1896, the fiftieth anniversary of the day when Cambridge became a city was celebrated somewhat explosively; and the use of gunpowder acquired a momentum which lasted well into the next academic year. Cannon-crackers left over from the celebration and touched off at unseemly hours foreshadowed a return to that kind of uproariousness for which college boys are proverbial, but for which "Harvard men" have long felt contempt. These small disturbances came to a head just before the Mid-Year Examinations when, against the statutes of the city and the laws of considerate good-breeding, a number of students discharged firearms in the middle of the night. The Board recognized "the Gunpowder Plot" as a boyish outbreak and not a crime; yet, since the property of the College and the peace of citizens needed prompt defence, it would have taken decisive measures with the students known to be implicated, had not a large and influential body of undergraduates pledged themselves "to refrain from the use of firearms and explosives of any sort," and to do their "utmost to discourage and prevent the use of such explosives" during the remainder of their College course. Accompanying this pledge was a petition that the Board should "treat with leniency" the students who had offended.

At the next meeting of the Board the following answer was adopted: —

"The Administrative Board of Harvard College, after a careful consideration of the petition and pledge of the undergraduates regarding the recent disturbance in and about Harvard Square, is glad to accept the coöperation of the students in the effort to preserve order and the good repute of the University.

"The Board therefore votes to lay on the table the cases of those students against whom complaint has been made."

Though "student government" does not exist in Harvard College, the authorities understand that friendly coöperation with students is a thousand times better than the relation of the suppressor to the intermittently suppressed; that the rightmindedness of the undergraduates is the basis of all government; and that the best guardian of the College is a sound undergraduate sentiment.

Such a sentiment showed itself at the end of the year, when some foolish boys, inspired by an athletic victory, had put paint on the pedestal of the statue of John Harvard. Paint as a vent for academic

enthusiasm and an expression of local triumph has long found favor with students of a certain grade. At Harvard the use of it is discountenanced as puerile; yet at Harvard, even in recent years, several instances have occurred, offensive in themselves, and rendered scandalous through the officiousness of the press. Notably in 1890, when the statue was seriously defaced by paint, the College suffered from a false charge that the offender was known and, for personal reasons, was sheltered by the authorities. At that time the students held an indignation meeting and adopted short-lived resolutions to ferret out the guilty man. In 1897, through the enterprise of the Junior class, undergraduate action was more faithful: a committee of three undertook to discover and to remove from the College the persons responsible for the painting, and carried the undertaking through with an independence, an efficiency, and a wise self-restraint which commanded the respect of all who knew the facts.

The healthy feeling of undergraduate responsibility for the good name of the College, and the natural desire of earnest young men to be of use, have found expression in an organized effort of the older students to do something for the younger. Eleven Seniors and Juniors are the nucleus of a committee of sixty, each of whom has assumed some responsibility for one-sixtieth of the Freshmen, the first-year Special Students, and the first-year Scientific Students. Each undertakes to see his men at the beginning of the year, to give them some notion of the best things in Harvard life and character, and to stand ready in time of need as an unpretentious counsellor. In some things, no teacher, however kind, can be half so much to a green member of the University as an older student of acknowledged standing.

Undergraduates are often justly charged with unwillingness to see that a College is "an institution of learning." The undergraduates engaged in this movement have seen that Harvard College is more than an institution of learning; and that, so far as it fails to give its alumni and its students earnest purposes and high ideals, so far it falls short of its own purpose and its own ideal. "It has been one merit of Harvard College," says Judge Holmes, "that it has never quite sunk to believing that its only function was to carry a body of specialists through the first stage of their preparation. About these halls there has always been an aroma of high feeling, not to be found or lost in science or Greek — not to be fixed, yet all-pervading."

Men talk sometimes as if the Graduate School were destined, and happily destined, to overshadow Harvard College; for men have seen that it is the Graduate School and not the College to which

they must look for the advancement of learning. The College guides youth to manhood; the Graduate School guides manhood to scholarship. Yet the very fact that the Graduate School is free to think first of learning and the College bound to think first of character gives the College a larger and a higher responsibility. The College has, and must ever have, the wider range of human sympathy. It cannot take a lower place than the Graduate School till the development of a scholar becomes nobler and more abiding than the education of a man.

L. B. R. BRIGGS, *Dean*.

THE LAWRENCE SCIENTIFIC SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — During the academic year 1896–97, arrangements were completed for an important change in the examinations prescribed for admission to the School. This alteration of the requirements is a matter of such moment that it is worth while briefly to set forth the steps by which it was attained.

The closer relation between the Scientific School and the College, which was established in 1889 by placing both institutions under the Faculty of Arts and Sciences, served to make the inadequacy of the entrance requirements to the Scientific School even more evident than it had been before. The fact that two juxtaposed undergraduate departments differed in the amount of work required for admission by as much as a year of preparation was seen to be unsatisfactory.

As a fitting preliminary to the task of advancing the requirements of the School, a conference with the masters of the leading academies and high schools of Massachusetts was held in February, 1895. At this meeting, attended by about sixty persons, it was unanimously voted that the schools would find their conditions bettered by such a change in the demands for entrance, that a student intending to enter the Scientific School would have to devote to his tasks an amount of labor substantially the same as that required to gain admission to Harvard College. Acting on this suggestion the Administrative Board proceeded to formulate the body of requirements which is set forth in the table given below. In April, 1897, these requirements were adopted by the Faculty of Arts and Sciences. They have been distributed to all the schools which have hitherto fitted students for entrance to the Scientific School. Many letters from school masters indicate that the new scheme meets their hearty approval. As will be noted, the requirements begin to go into effect in 1898–99, and will be in complete operation in five years from that date. It is believed that the increased work is so distributed as not to inconvenience the schools which prepare for this institution. The new requirements provide for the retention of those subjects which have hitherto been demanded for entrance, and add a list of new subjects, which affords a wide range of election, the range of these elective subjects being from shopwork to Greek. As yet the precise

weight to be attached to the several non-required subjects has not been determined, this determination awaiting the final decision of the Faculty of Arts and Sciences.

**REQUIREMENTS FOR ADMISSION TO THE FIRST-YEAR CLASS OF THE
LAWRENCE SCIENTIFIC SCHOOL.**

The following preliminary statement of requirements for admission to the Lawrence Scientific School has received the approval of the Faculty of Arts and Sciences. The plan contemplates bringing the admission requirements up to substantial equality with those of the College by adding new subjects from time to time.

The studies which may be presented in satisfaction of the requirements for admission are arranged in three groups.

In those studies which are the same for admission to Harvard College and the Scientific School, the examinations will be identical.

Certain of these studies cannot be offered for admission to Harvard College.

Group I.

(All the studies of this group are prescribed, except that Advanced German may be offered in place of Elementary French, or Advanced French in place of Elementary German.)

Elementary.

English.	History of Greece and Rome or
German.	History of the United States
French.	Algebra. [and England.
	Plane and Solid Geometry.

Group II.

Either of the first two studies or any two of the last five studies of this group must be offered. It is recommended that Physics be selected.

Elementary.

Physics.	Anatomy, Physiology,
Chemistry.	Botany. [and Hygiene.
Physiography.	Zoölogy.

Advanced.

Astronomy.

Group III.

(After 1898 selections from this group may be offered in accordance with the directions to be given in a later publication.)

Elementary.

Greek.			
Latin.			
German.	} (See remark under Group I.)	Shopwork,	{ Wood-working. Blacksmithing. Chipping, Filing, and Finishing. Machine-tool Work.
French.			
Drawing,	{ Freehand. { Projections.		

Advanced.

German.	Algebra.
French.	Physics.
Logarithms and Trigonometry.	Meteorology.

No candidate can offer an advanced study who has not offered the corresponding elementary study; but Physics is considered elementary with respect to Meteorology, and Geometry with respect to Astronomy.

The requirements for admission in 1897 to the Scientific School are equivalent to Group I, with the substitution of Physics for either the German or the French of that Group.

In 1898 a candidate may satisfy the requirements for admission by passing the examinations in —

- (1) all the studies of Group I;
- (2) one, or two, studies selected from Group II as stated in the remarks under that group.

It is proposed after 1898 to require every year one or two additional studies to be selected from Groups II and III until the total requirements for entrance shall be equal to those of the College.

Many of the studies in Groups II and III will serve to anticipate like studies prescribed in one or more of the various courses of study leading to the degree of Bachelor of Science; but these courses of study in the School differ so much from each other that it is impossible to make a general distinction between anticipatory studies and those not anticipatory. Candidates will be able to ascertain which admission subjects are anticipatory for any one of the four-year courses offered by the School by consulting the Scientific School Pamphlet or the Harvard University Catalogue.

Another indication of the closer alliance between the Scientific School and the College is to be found in the numerous transfers from the lists of one institution to those of the other. Thus, at the close

of the academic year 1896-97 and the beginning of the present term, twenty-eight students were transferred from the Scientific School to the College, while nine came from the College to the Scientific School. The transfers from the Scientific School to the College are to be explained by the fact that many young men, after a year or two of study, finding that they are not fitted for work in science, turn to seek the arts degree which is obtainable by them on easier terms than that in science, inasmuch as the College permits a choice of subjects suited to their capacities and tastes. This progressive effacement of the demarcation between the two Schools is not disadvantageous; it points, however, to the ultimate abolition of the distinction between the two undergraduate departments of the University.

During the year the discipline of the School has been satisfactory. Nine persons have been separated from the institution, in all save one case for the inadequate performance of duty. Forty-eight students have been put on probation for like neglect.

The system of Advisers, which began with the special students, has been applied with good effects in the School. Each student is classified in one of the eleven four-year courses. Some one of the teachers who is especially concerned with the work of the course, usually the person in charge thereof, is designated as the Adviser of those who are registered in his department. His recommendation is a condition precedent to allowing any slight departures from the required order of studies, such as it may be within the power of the Dean or the Administrative Board to approve.

So far as is possible with the increased numbers of the School the method of personal attention to its students has been maintained. In cases of illness, except where the report of the medical inspector shows the ailment to be of no importance, the men are visited by the Dean or Secretary. The records of absences are inspected each week, and all cases of a doubtful nature at once reported to the Adviser or to the Board. It is believed that this system is effective. The Administrative Board held during the year forty-three meetings of which ten were during the long vacation. These meetings have in length averaged over two hours, nearly the whole of the sessions being devoted to the consideration of the cases of individual students brought up by petitions or by the reports of the Dean and Secretary. The experience with such business has made it evident that practically every student after he has been three months in the School has become well known to one or more members of the Board.

The records of the School are in good order. The minutes of the meetings of the Board have been sedulously kept and have been duly approved. The records of each student, including the account of his entrance examinations, the school whence he came, his age, parent or guardian, as well as the returns of his examinations, etc., are all assembled on one folio sheet where they may be conveniently and quickly examined. On this sheet there is also a reference to every action of the Administrative Board concerning the man. All the documents relating to each student are placed in a large envelope which is filed in an alphabetical order. The old records of the Board meetings and other important documents not in use are deposited in the University archives. It should, however, be noted that the current records are not provided with fire-proof storage.

Although the business conditions of the country, as the correspondence of the School clearly shows, have greatly retarded the increase in the number of students, there has of late years been a steady gain in the attendance. The history of the registration since the establishment of the School is shown in the following table.

STUDENTS REGISTERED IN THE LAWRENCE SCIENTIFIC SCHOOL
IN EACH YEAR SINCE ITS FOUNDATION.

Year.	No.	Year.	No.	Year.	No.	Year.	No.
1847	5	1860	51	1873	43	1886	14
1848	12	1861	57	1874	29	1887	21
1849	23	1862	56	1875	34	1888	35
1850	63	1863	76	1876	29	1889	65
1851	69	1864	75	1877	23	1890	88
1852	48	1865	70	1878	17	1891	118
1853	44	1866	58	1879	16	1892	181
1854	41	1867	40	1880	37	1893	229
1855	56	1868	41	1881	30	1894	303
1856	52	1869	43	1882	25	1895	340
1857	67	1870	35	1883	26	1896	388
1858	69	1871	27	1884	28	1897	411
1859	62	1872	40	1885	22	(to Dec. 10)	

1847-51 5 years up.

1852-62 11 " stationary.

1863-65 3 " up.

1866-79 14 " down.

1880-86 7 years up and then down.

1887-97 11 " strongly up.

51 " of which 20 good and
31 bad.

For some years there has been a relative decrease in the number of persons seeking admission to the School as special students, because they were not fitted to obtain regular standing by passing the

entrance examinations. This decrease is probably due to the action of the Board in previous years which has made it evident that the authorities of the School deemed the admission of such persons in most cases undesirable. At the same time the number of mature men seeking registration as "specials" in order that they may pursue a particular limited course of study is evidently increasing. In most instances such persons prove to be valuable members of the School. In 1892-93 eighty-one of the one hundred and sixty-one registered were special students; in 1896-97 only seventy-six of the three hundred and sixty-eight registered were in this group.

The needs of the School in the way of buildings for the proper accommodation of the classes, particularly those in Architecture, Engineering and Mining and Metallurgy are even greater than was stated in the report of last year. Each increase in the numbers attending the classes entails additional inconveniences in regard to rooms and appliances. This difficulty arises not only from the steady gain in the registration of the School, but also from the fact that there has been of late a rapid increase in the number of students registered in Harvard College who are following, in the main, some one of the four-year courses of study in the Scientific School. Owing to the fact that by far the greater part of the courses offered for the degree of S.B., even those of a somewhat technical nature, can be taken by students in the College and counted toward the arts' degree, many young men who intend to devote themselves to technical science register in the College, where they have a better chance of obtaining pecuniary aid. Some of these students intend to avail themselves of the regulation which permits a member of the College at the end of his third year of residence, or on the accomplishment of fourteen full courses, to transfer his registration to the Lawrence Scientific School with the expectation that he will be able to take his degree in arts at the end of one year on work prescribed by that School, and his degree in science at the end of his second year of such residence. As a result of these arrangements the registration of the Scientific School does not truly represent the number of students availing themselves of the instruction it provides. In 1896-97 there were probably about fifty students whose names appeared on the catalogue as College students who, but for the pecuniary inducements to register in Harvard College, would have been included in the lists of the Scientific School.

A probable effect of the gradual increase in entrance requirements will be a temporary diminution in the number of persons attending the School. Inasmuch, however, as the requirements have been

fitted to the instruction given in the better class of high schools, it is to be hoped that the decrease in numbers will not be serious or permanent. There should be in this country a place for at least one school of science whose entrance requirements, measured in terms of previous study, are as high as those imposed for entrance to Harvard College.

N. S. SHALER, *Dean*.

THE GRADUATE SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—As Dean of the Graduate School, I have the honor to present my report on the condition of the School in the academic year 1896-97.

The members of the Administrative Board for the year were Professors Norton, Smith, Farlow, Jackson, B. O. Peirce, von Jagemann, Ashley, Hart, and Kittredge, and the Dean of the School. Professors Norton and Hart replaced Professors Mark and Channing, who had served on the Board since it was constituted in 1890. Professor Channing had been Secretary of the Board from 1890 to 1895. Professor Kittredge has been Secretary since 1895.

The character and condition of the School are set forth from various points of view in the following Tables, which show in succession:—

- I. Number and classification of students (resident and non-resident; students doing full or partial work; fields of study; length of connection with the School; holders of Bachelor's and of the higher degrees): 1894-95, 1895-96, 1896-97.
- II. Colleges and Universities represented, with Degrees held: 1896-97.
- III. Birthplaces of Graduate Students: 1894-95, 1895-96, 1896-97.
- IV. Degrees conferred in 1895, 1896, and 1897.
- V. Departments in which the Higher Degrees were conferred in 1897.
- VI. Fellowships and Scholarships: numbers of applicants and appointees in 1894-95, 1895-96, and 1896-97.
- VII. Age of Masters of Arts and Doctors of Philosophy: 1897.

Since these Tables suggest many of their own inferences and require but little explanation, my remarks upon them may be brief.

STUDENTS.

The number of students registered as members of the School in 1896-97 was three hundred and six. This does not include seven persons who were in the School for a period of less than a month; of these seven persons, four entered a College class, and one each entered the Divinity School, the Law School, and the Medical School.

TABLE I. — NUMBER AND CLASSIFICATION OF STUDENTS.

	1894-95.	1895-96.	1896-97.
Resident Students doing full work in the School for the whole academic year	161	175	194
Resident Students not doing full work or not working for the whole year as resident students . . .	94 255	105 280	96 290
Non-Resident Students holding fellowships	12	13	14
Non-Resident Students not holding fellowships . .	5 17	6 19	2 16
Students whose studies chiefly lay in*			
I. Semitic Languages and History	5	6	4
II. Ancient Languages (Classics and Sanskrit) . .	37	39	37
III. Modern Languages (including English Language and Literature and Comparative Literature)	52	74	59
IV. Philosophy (including Education and Teaching)	39	42	44
V. History and Political Science	49	55	58
VI. The Fine Arts (including Architecture) . . .	3	2	2
VII. Music	2	0	0
VIII. Mathematics	21	23	24
IX. Physics	9	8	12
X. Chemistry	12	12	17
XI. Natural History	35	29	31
XII. American Archaeology and Ethnology . . .	1	1	1
Unclassed Students	7 272	8 299	7 306
First-year Students	149	157	156
Second-year Students	67	81	71
Third-year Students	39	36	49
Fourth-year Students	13	18	21
Students in a fifth or later year	4 272	7 299	9 306
A.B.'s and S.B.'s of Harvard University and of no other institution	98	109	112
A.B.'s and S.B.'s (and holders of similar degrees) of other institutions and also of Harvard University	35	38	36
Students not holding the Harvard degree of A.B. or S.B.	139 272	152 299	158 306
Students holding the Harvard degree of A.M., Ph.D., or S.D.	80	91	95
Students holding the Harvard degree of A.B. or S.B., but not of A.M., Ph.D., or S.D.	81	88	89
Students holding no Harvard degree in Arts, Philosophy, or Science	111 272	120 299	122 306

* For detailed statistics as to the number of Graduate Students enrolled in the various courses of instruction offered by the Faculty of Arts and Sciences, see the Report of the Dean, pp. 52-79.

The foregoing Table exhibits the usual classification of the students of the School, and is given, for convenience of comparison, for the three successive academic years, 1894-95, 1895-96, and 1896-97.

Of the Resident Students, two hundred and fifty-six were in attendance throughout the whole year. Of this number one hundred and ninety-four—including all holders of fellowships and scholarships—were engaged in what is defined as a complete year of work (four courses of advanced grade, or their equivalent) or were doing a larger amount of work. Sixty-two of the number in residence throughout the year were doing partial work, which ranged from half a course (in two instances) to three courses. Several of these persons were engaged in teaching or in other professional occupations in the vicinity of Cambridge, and were devoting only a part of their time to study in the Graduate School. Some of them had no intention of becoming candidates for a degree. Others hoped to obtain one of the higher degrees after two or more years of work upon completing an approved programme of studies. Of the remaining thirty-four Resident Students, sixteen entered after November 1st, 1896, and eighteen withdrew before the close of the year.

The class of Non-Resident Students includes all holders of traveling fellowships and other fellowships held by students away from Cambridge. It also embraced, in 1896-97, two persons who had completed the period of residence for a higher degree, and yet desired to remain in connection with the University and to receive the guidance of its officers of instruction. All Non-Resident Students are required to keep in communication with the Dean, and to make reports from time to time upon their plans and their work. These reports are made to the Dean of the School, to the Departmental Committees under which the students are working, and, in the case of holders of fellowships, to the Chairman of the Committee on Fellowships and Other Aids for Graduate Students.

The second division of this Table indicates the several fields of learning and science in which the work of the students lay. Classification here is not altogether easy since the work of many students lies, in part at least, in more than one Department—a fact that cannot be taken into consideration in the Table. Detailed information as to the choice of studies of Graduate Students in the several Departments may be obtained by a reference to the statistics given in the Report of the Dean of the Faculty of Arts and Sciences. The steady attraction which several of the great departments of learning exercise upon advanced students is apparent from the Table.

(Continued on page 134.)

Albion College, Mich.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1
Allegheny College, Pa.*	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	3
Amherst College, Mass.	7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	7	7
Bates College, Me.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	2
Beloit College, Wis.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	2
Besançon, Académie de, France	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1
Boston College, Mass.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1
Boston University, Mass.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1
Bowdoin College, Me.	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	7	4
Brooklyn Polytechnic Institute, N. Y.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	2
Brown University, R. I.	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	9	5
California, University of	1	3	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	9	7
Carthage College, Ill.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1
Chicago, University of, Ill.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	1	1
Cincinnati, University of, O.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	2	2
Colby University, Me.	2	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	2	2
Colgate University, N. Y.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	2
Colorado, University of	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1
Columbia University, N. Y.	1	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	2	2
Cornell University, N. Y.*	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	3
Dalhousie University, N. S.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	2
Dartmouth College, N. H.	5	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	8	6
Drury College, Mo.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1

TABLE II. — CONTINUED.

	A.B.	S.B.	LITT.B.	Ph.B.						LL.B.	M.D.	No. De- grees.	No. Per- sons.
Middlebury College, Vt.	1	.	.	.	.	.	.	.	.	.	.	1	1
Minnesota, University of	1	.	.	.	1	.	.	.	.	.	.	2	2
Missouri, University of	.	1	.	.	.	1	.	.	.	.	.	2	2
Mt. Allison University, N. B.	2	.	.	.	.	.	.	.	.	.	.	2	2
New Brunswick, University of	2	.	.	.	.	.	.	.	.	.	.	2	2
North Carolina, University of*	1	.	.	1	.	1	.	.	.	.	.	3	2
Northwestern University, Ill.	1	.	.	1	.	1	.	.	.	.	.	3	2
Oberlin College, O.	6	.	.	1	.	1	.	.	.	.	.	3	7
Ohio State University	2	.	.	.	.	.	.	.	.	.	.	2	2
Ohio Wesleyan University	1	.	.	.	.	.	.	.	.	.	.	1	1
Paris, Faculté des Lettres*	.	.	2	.	.	.	.	.	.	.	.	2	2
Pennsylvania, University of	2	.	.	.	.	.	.	.	.	.	.	2	2
Princeton University (College of New Jersey)	3	.	.	.	.	.	.	.	.	.	.	3	3
Randolph-Macon College, Va.	1	.	.	.	.	.	.	.	.	.	.	1	1
Rennes, Académie de, France	.	.	1	.	.	.	.	.	.	.	.	1	1
St. Lawrence University, N. Y.	.	1	.	1	.	.	.	.	.	.	.	2	2
Syracuse University, N. Y.	1	.	.	.	.	.	.	.	.	.	.	1	1
Texas, University of	.	2	.	.	1	.	.	.	.	.	.	3	2
Toronto, University of, Ont.	1	.	.	.	.	.	.	.	.	.	.	1	1
Trinity College, Conn.	1	.	1	.	.	.	.	.	.	.	.	2	2
Trinity College, N. C.	1	.	.	.	.	.	.	.	.	.	.	1	1
Tufts College, Mass.	3	.	.	2	.	2	.	.	1	.	.	3	5
Upper Iowa University	1	.	.	1	.	.	.	.	.	.	.	2	1
Vermont, University of	4	.	.	.	.	.	.	.	.	.	.	4	4

[illegible]

* Besides the degrees enumerated above, the following were held by one or two persons, as indicated: Agrégé d'Anglais and Licencié-en-Lettres, Paris; Archiviste-Paléographe, of the École des Chartes, Paris; C.E. (2), Allegheny College, Pa., and Rensselaer Polytechnic Institute, N. Y.; Heb.B. (2), Hebrew Union College, O.; M.E., Cornell University, N. Y., and Stevens Institute of Technology, N. J.; M.E.B., University of Minnesota; Pharm.Gr., Chicago College of Pharmacy, Ill.; Ph.M., University of North Carolina.—The University of Virginia was represented by one Non-Graduate; Harvard, by three. There were, further, in the School two Graduates of the United States Naval Academy, Md.

[illegible]

* Besides the degrees enumerated above, the following were held by one or two persons, as indicated: Agrégé d'Anglais and Licencié-es-Lettres, Faculté des Lettres, Paris; Archiviste-Paléographe, of the École des Chartes, Paris; C.E. (3), Allegheny College, Pa., and Rensselaer Polytechnic Institute, N. Y.; Heb.B. (3), Hebrew Union College, O.; M.E., Cornell University, N. Y., and Stevens Institute of Technology, N. J.; M.E.B., University of Minnesota; Pharm.Gr., Chicago College of Pharmacy, Ill.; Ph.M., University of North Carolina.—The University of Virginia was represented by one Non-Graduate; Harvard, by three. There were, further, in the School two Graduates of the United States Naval Academy, Md.

TABLE II. — CONTINUED.

	A.B.	S.B.	Litt.B.	Ph.B.	A.M.	S.M.	Ph.D.	D.B.	LL.B.	M.D.	No. De- grees.	No. Per- sons.
Middlebury College, Vt.	1	.	.	.	.	.	.	.	.	.	1	1
Minnesota, University of	1	.	.	.	1	.	.	.	.	.	2	2
Missouri, University of	.	1	.	.	.	1	.	.	.	.	2	2
Mt. Allison University, N. B.	2	.	.	.	.	.	.	.	.	.	2	2
New Brunswick, University of	2	.	.	.	.	.	.	.	.	.	2	2
North Carolina, University of*	1	.	.	1	1	.	.	.	.	.	3	2
Northwestern University, Ill.	1	.	.	1	1	.	.	.	.	.	3	2
Oberlin College, O.	6	.	.	1	1	.	.	.	.	.	8	7
Ohio State University	2	.	.	.	.	.	.	.	.	.	2	2
Ohio Wesleyan University	1	.	.	.	.	.	.	.	.	.	1	1
Paris, Faculté des Lettres*	.	.	2	.	.	.	.	.	.	.	2	2
Pennsylvania, University of	2	.	.	.	.	.	.	.	.	.	2	2
Princeton University (College of New Jersey)	3	.	.	.	.	.	.	.	.	.	3	3
Randolph-Macon College, Va.	1	.	.	.	.	.	.	.	.	.	1	1
Rennes, Académie de, France	.	.	1	.	.	.	.	.	.	.	1	1
St. Lawrence University, N. Y.	.	1	.	1	.	.	.	.	.	.	2	2
Syracuse University, N. Y.	1	.	.	.	.	.	.	.	.	.	1	1
Texas, University of	.	2	.	.	1	.	.	.	.	.	3	2
Toronto, University of, Ont.	1	.	.	.	.	.	.	.	.	.	1	1
Trinity College, Conn.	1	.	1	.	.	.	.	.	.	.	2	2
Trinity College, N. C.	1	.	.	.	.	.	.	.	.	.	1	1
Tufts College, Mass.	3	.	.	2	.	.	.	1	.	.	3	5
Upper Iowa University	1	.	.	1	.	.	.	.	.	.	2	1
Vermont, University of	4	.	.	.	.	.	.	.	.	.	4	4

[illegible]

* Besides the degrees enumerated above, the following were held by one or two persons, as indicated: Agrégé d'Anglais and Licencié-ès-Lettres, Faculté des Lettres, Paris; Archiviste-Paléographe, of the École des Chartes, Paris; C.E. (3), Allegheny College, Pa., and Rensselaer Polytechnic Institute, N. Y.; Heb.B. (3), Hebrew Union College, O.; M.E., Cornell University, N. Y., and Stevens Institute of Technology, N. J.; M.E.B., University of Minnesota; Pharm.Gr., Chicago College of Pharmacy, Ill.; Ph.M., University of North Carolina.—The University of Virginia was represented by one Non-Graduate; Harvard, by three. There were, further, in the School two Graduates of the United States Naval Academy, Md.

In 1893-94, in the order of popularity, the subjects were: History and Political Science, Modern Languages, Natural History, Philosophy, Classics and Sanskrit, Mathematics, Chemistry, Semitics, Fine Arts, Physics, American Archaeology and Ethnology, Music. In 1894-95 the order was: Modern Languages, History and Political Science, Philosophy, Classics and Sanskrit, Natural History, Mathematics, Chemistry, Physics, Semitics, Fine Arts, Music, American Archaeology and Ethnology. In 1895-96 the order was: Modern Languages, History and Political Science, Philosophy, Classics and Sanskrit, Natural History, Mathematics, Chemistry, Physics, Semitics, Fine Arts, American Archaeology and Ethnology, Music. In 1896-97 the order was: Modern Languages, History and Political Science, Philosophy, Classics and Sanskrit, Natural History, Mathematics, Chemistry, Physics, Semitics, Fine Arts, American Archaeology and Ethnology, Music.

An inspection of the next division of Table I shows that while the proportion of students remaining in the School for a second year has slightly diminished, that of persons remaining for a third and fourth year has increased. As in the past, about one-half of the members of the School have been in the School but one year, and about two-thirds of these obtained the degree of Master of Arts at the close of this year; fewer than a quarter have been in the School for two years, while about the same number have been in it for three or more years.

The fourth division of Table I shows in general the extent to which the School draws its membership from graduates of other institutions. For detailed information upon this point, Table II above should be consulted. About sixty per cent. of the students of the School held a degree from Harvard University; and of these students about forty-six per cent. of the whole number were Bachelors of Arts, and about two per cent. were Bachelors of Science, of Harvard University.

Tables II (pp. 130-33) and III are mutually supplementary, and exhibit the extent to which different parts of the country and different higher institutions are represented in the Graduate School. In the former are given the various colleges and universities, professional and technical schools, whose graduates were members of the School in 1896-97, together with the degrees these persons held, and the number of different persons coming from each institution.* These

of the colleges and universities upon this list were further represented in the College by recent graduates (fifteen in number) who preferred to enter the Senior Class, as candidates for the degree of Bachelor of Arts, rather than enter the Graduate School.

Tables show that Harvard University continues to draw its Graduate Students from the whole country without distinction, from Canada, and, to a certain extent, from Europe. The colleges and universities that were represented by five or more persons, arranged in order according to the number of their graduates in the School, are: Harvard University; University of Kansas and Wesleyan University, with the same number of students; Amherst College, University of California and Oberlin College, with the same number; Dartmouth College and Indiana University, with the same number; Brown University and Tufts College, with the same number. Six members of the School held degrees from European universities, of whom four were from France; one of these was the holder of a travelling fellowship from the French Ministry of Public Instruction, and had come to Harvard to study English. Eight students had previously graduated from Canadian universities or colleges. The most common degree was that of Bachelor of Arts; next that of Master of Arts. Of the three hundred and twenty-four Bachelors, two hundred and seventy-three were Bachelors of Arts, and twenty-nine were Bachelors of Science. There were seven Masters of Science in the School, but no Doctors of Science.

TABLE III. — BIRTHPLACES OF GRADUATE STUDENTS.

	1894-95.	1895-96.	1896-97.
Students born in the New England States	109	131	141
Students born in other Northern States east of the Mississippi River	97	85	86
Students born in Southern States east of the Mississippi River	20	19	18
Students born in States west of the Mississippi River . .	17	25	25
Students born in the Dominion of Canada	16	16	17
Students born in other foreign countries	13	23	24
Total number of students	272	299	306

This Table shows that fewer than half of the students are of New England birth, and that in 1896-97, as compared with previous years, while the number of students born in the Southern states has fallen off, the proportion of students born in other parts of the United States, in Canada, and in foreign lands, has remained remarkably constant.

No student has died within the year.

DEGREES.

One hundred and forty persons were recommended for the higher degrees at Commencement, 1897. The details are found in the next Table, which gives, first, the number of students in the Graduate School recommended by the Faculty of Arts and Sciences for any degree, and the number of other students recommended for the degree of A.M., in the three years 1895, 1896, and 1897. In the second part of the table, all persons recommended for the higher degrees (A.M., Ph.D., and S.D.) are classified with reference to their previous graduation as Bachelors of Arts or of Science.

TABLE IV. — DEGREES CONFERRED IN 1895-97.

	1895.	1896.	1897.
Graduate students recommended for A.B.	24	16	14
Graduate students recommended for A.M.	79	83	94
Graduate students recommended for Ph.D.	16	18	25
Graduate students recommended for S.D.	2 121	0 117	1 134
<hr/>			
College Seniors of a preceding year, recommended for A.M. on work done in senior year	0	7	6
Professional students recommended for A.M. on special courses of study	8	8	18
Professional students recommended for A.M. with a professional degree	5 13	0 15	1* 20
<hr/>			
Total of the above list	134	132	154
Deduct Graduate students receiving A.B.	24	16	14
<hr/>			
Total number receiving A.M., Ph.D., and S.D.	110	116	140
<hr/>			
Harvard Bachelors of Arts or Science, not pre- viously graduated elsewhere	46	50	57
Harvard Bachelors of Arts or Science, previously graduated elsewhere	22	21	24
Students not Harvard Bachelors of Arts or Science	42 110	45 116	59 140
<hr/>			

The next Table indicates the departments or fields of study in which chiefly lay the work of the candidates for the degree of Master of Arts and of Doctor of Philosophy in 1897.

* The practice of giving the degree of A.M. with a professional degree was discontinued in 1896. This student had been a member of the Medical School before 1896, and received his degree "as of 1895."

TABLE V. — DIVISIONS AND DEPARTMENTS IN WHICH THE HIGHER DEGREES WERE TAKEN (1897).

DIVISION.	DEPARTMENT.	DEGREES.	
		A.B.	PH.D.
I. Semitic Languages and History . . . . .		..	.. 1
II. Ancient Languages:			
Classical Philology	17	..	.. ..
Indo-Iranian Languages	1	..	.. ..
Total in Ancient Languages	— 18	—	1*
III. Modern Languages:			
English	13	..	4 ..
German	3	..	1 ..
French	1	..	.. ..
Italian and Spanish.			
Germanic and Romance Philology	1	..	2 ..
In more than one Department	7	..	.. ..
Total in Modern Languages	— 25	—	7
IV. Philosophy		10	.. 3
[Education and Teaching	8]	..	.. ..
V. History and Political Science:			
History and Government	13	..	1 ..
Political Economy	7	..	5 ..
Total in Hist. and Political Sci.	— 20	—	6
VI. Fine Arts.			
VII. Music.			
VIII. Mathematics		5	.. 2
IX. Engineering.			
X. Physics		4	.. ..
XI. Chemistry		5	.. 2
XII. Biology:			
Botany	4	..	.. ..
Zoölogy †	5	..	2 ..
Total in Biology	— 9	—	2
XIII. Geology:			
Geology and Geography	1	..	1 ..
Mineralogy and Petrography . . . . .		..	.. ..
Total in Geology	— 1	—	1
XIV. American Archaeology and Ethnology		2	.. ..
In more than one Division		3	.. ..
Professional Students:			
Divinity School		9	.. ..
Law School		3	.. ..
Medical School		2	.. ..
Total		14	25

* The candidate for the degree of Doctor of Philosophy in the Division of Ancient Languages received his degree in Comparative Philology.

† One degree of S.D. was conferred in the field of Natural History (Zoölogy).

The degree of Doctor of Philosophy was conferred upon the twenty-five persons named below. With each name are given the special field in which the degree was taken, the candidate's academic history, and his present occupation.

Philology.

GEORGE DAVIS CHASE.

Comparative Philology. — A.B. 1899, A.M. 1906. — Res. Gr. Stud., 1894-97.
Now studying Comparative Philology in Leipzig, as Kirkland Fellow.

MARY MILLMORE SKINNER.

Semitic Philology. — A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-97.
Now studying Semitic Philology in Strassburg, Germany, as Rogers Fellow.

JOHN HENRY BOYNTON.

English Philology. — A.B. 1890, A.M. 1894. — Res. Gr. Stud., 1893-97.
Instructor in English in Syracuse University, N. Y.

FRANK EDOAR FARLEY.

English Philology. — A.B. 1893, A.M. 1894. — Res. Gr. Stud., 1893-97.
Instructor in English, Haverford College, Penn.

ALBERT ELMER HANCOCK.

English Philology. — S.B. (*Wesleyan Univ., Conn.*) 1891, A.M. 1895. — Res. Gr. Stud., 1894-97.
Instructor in English, Williams College, Mass.

ROSCOE ADDISON SMALL.

English Philology. — A.B. (*Bates Coll., Me.*) 1892, A.B. 1894, A.M. 1896. — Res. Gr. Stud., 1893-97.
Instructor in English, Brown University, R. I.

JOHN ALBRECHT WALK.

Germanic Philology. — A.B. (*Northwestern Univ., Ill.*) 1892, A.M. 1896. — Res. Gr. Stud., 1894-97.
Now studying Germanic Philology, in Berlin, as Parker Fellow.

JEREMIAH DENIS MATTHIAS FORD.

Romance Philology. — A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-97.
Now studying Romance Philology, in Paris, as Harris Fellow.

RAYMOND [LESLIE] WEEKS.

Romance Philology. — A.B. 1890, A.M. 1901. — Res. Gr. Stud., 1890-91; Non-Res. 1893-95.
Professor of French, University of Missouri, Columbia.

Philosophy.

HERBERT ERNEST CUSHMAN.

Metaphysics. — A.B. (*Bates Coll.*) 1897, D.B. (*Tufts Coll.*) 1899, A.M. (*ibid.*) 1899, A.B. 1896, A.M. 1896. — Res. Gr. Stud., 1894-97.
Instructor in Philosophy, Tufts College.

ALFRED LE ROY HODDER.

Metaphysics. — Res. Gr. Stud., 1890-93.
Professor of Literature, Bryn Mawr College, Penn.

BORIS SIDIS.

Psychology. — A.B. 1894, A.M. 1894. — Res. Gr. Stud., 1894-96.
Now on the staff of the N. Y. State Psychological Institute, New York, N.Y.

History.

GAILLARD THOMAS LAPSLEY.

Constitutional History of England to 1577. — A.B. 1893, A.M. 1894. Res. Gr. Stud., 1893-94, 1895-97.
Now engaged in historical research in London.

Political Science.

GUY STEVENS CALLENDER.

Economics. — A.B. (*Oberlin Coll., O.*) 1891, A.B. 1893, A.M. 1894. — Res. Gr. Stud., 1892-97.
Instructor in Political Economy at this University.

CLYDE AUGUSTUS DUNIWAY.

Economics and History. — A.B. (*Cornell Univ., N. Y.*) 1892, A.M. 1894. — Res. Gr. Stud., 1893-97.
Assistant Professor of American History, at the Leland Stanford Jr. Univ., Cal.

CHARLES WHITNEY MIXTER.

Economics. — A.B. (*Johns Hopkins Univ., Md.*) 1892, A.M. 1893. — Res. Gr. Stud., 1892-94, 1895-97.
Assistant in Economics at this University.

OLIVER MITCHELL WENTWORTH SPRAGUE.

Economic History. — A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-97.
Now studying Economic History in London, as Rogers Fellow.

GEORGE OLE VIRTUE.

Economics. — A.B. 1892, A.B. (*Univ. of Kansas*) 1893, A.M. 1893. — Res. Gr. Stud., 1892-95.
Instructor at the Minnesota State Normal School, Winona.

Mathematics.

MILTON BROCKETT PORTER.

Higher Analysis. — S.B. (*Univ. of Texas*) 1892, A.M. 1895. — Res. Gr. Stud., 1894-97.
Instructor in Mathematics at the University of Texas.

FREDERICK HOLLISTER SAFFORD.

Higher Analysis. — S.B. (*Mass. Inst. of Tech.*) 1888, A.M. 1894. — Res. Gr. Stud., 1893-97.
Instructor in Mathematics at this University.

Chemistry.

FRANK BERNARD GALLIVAN.

Organic Chemistry. — A.B. 1893. — Res. Gr. Stud. 1893-95.
Assistant in Chemistry, Brooklyn Polytechnic Institute, N. Y.

HENRY AUGUSTUS TORREY.

Organic Chemistry. — A.B. (*Univ. of Vermont*) 1892, A.M. 1895. — Res. Gr. Stud., 1892-94, 1896-97.

Now studying Physical Chemistry in Leipzig, as Parker Fellow.

Biology.**JOHN IRVIN HAMAKER.**

Zoology. — A.B. (*Univ. of Kansas*) 1893, A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-97.

Professor of Biology, Trinity College, N. C.

HENRY RICHARDSON LINVILLE.

Zoology. — A.B. (*Univ. of Kansas*) 1893, A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-97.

Teacher of Biology in one of the City High Schools, New York.

Geology.**THOMAS AUGUSTUS JAGGER, Jr.**

Dynamic and Experimental Geology. — A.B. 1893, A.M. 1894. Res. Gr. Stud., 1893-94, 1896-96.

Instructor in Geology at this University.

The degree of Doctor of Science was conferred upon one candidate: —

Natural History.**ALFRED GOLDSBOROUGH MAYER.**

Zoology. — M.B. (*Stevens Inst. of Tech., N. J.*) 1899. Graduate Student, 1897-98, 1894-94. Assistant in the Museum of Comparative Zoology.

Of these twenty-five Doctors of Philosophy, seventeen — two-thirds of the whole number — are now engaged in the active pursuit of a profession, and may be regarded as having completed their preparatory professional studies. One of these men is a specialist in mental diseases, and the remainder are teachers in colleges or universities (three are professors; ten, instructors; one, an assistant), or in secondary institutions (three). (Four of these teachers are at present in the service of this University, — three as instructors, and one as an assistant.) Especially noteworthy is the large number of college teachers of English in the list. Eight of the twenty-five Doctors of Philosophy are continuing their studies, or are carrying on investigations connected with their specialties, seven of them being holders of travelling fellowships, and all of them engaged in work in Europe.

With respect to the academic history of these men, it should be noted that all save one are holders of a Harvard degree (both A.B. and A.M., 16; A.M. only, 7; A.B. only, 1). There were three S.B.'s of other institutions, all of whom were also Harvard A.M.'s, and there were ten A.B.'s from other institutions (including three from the University of Kansas), of whom seven were also Harvard A.B.'s and A.M.'s, while three held also only the Harvard A.M. One candidate had no degree whatever, and only one had other degrees than those named above.

In the case of six of the candidates, five or more years had elapsed since they had received the Harvard A.B. or had been admitted to equivalent rank; two were A.B.'s of two years' standing; ten were A.B.'s of three years' standing; and six were A.B.'s of four years' standing. The average time that had elapsed in the

cases of the candidates in 1897 between their A.B. and Ph.D. is thus (omitting extreme cases, of five years or more) almost exactly three years.

This period — three years — is also approximately the average period of resident study at this University of these men. One of the candidates was registered as a Resident Student for only one year (with two years of non-resident study); six were Resident Students for only two years; eleven for three years; and seven for four years.

FELLOWSHIPS AND SCHOLARSHIPS.

The appointments to fellowships and scholarships for 1896-97 were made toward the close of the preceding academic year, chiefly in June, 1896. Similarly, the appointments for the current year, 1897-98, were for the most part made in the academic year the business of which is covered by the present Report. The recommendations to fellowships and scholarships are made by the Faculty of Arts and Sciences, on the nomination of its Committee on Fellowships and Other Aids for Graduate Students, and thus form a part of the business of that Faculty, but as the persons concerned are members of the Graduate School, information on this subject has always been given in the Reports of the Dean of the Graduate School.

Twenty-one fellowships and fifty-four scholarships * were held by students in the Graduate School in 1896-97. With the fellowships are included the newly established John Harvard Fellowships, without stipend; in 1896-97 there was but one appointment to these fellowships. Fourteen of the fellowships, including the John Harvard Fellowship, were held by Non-Resident Students who pursued their studies abroad. Seven of the fellowships and all the scholarships were held by Resident Students. Of the Supplementary Foundations sometimes available for Graduate Students, three were held by resident members of the School, — the Hemenway Fellowship, the Scholarship of the Harvard Club of San Francisco, and the Virginia Barret Gibbs Scholarship.

For the year 1897-98, appointments have been made to twenty-

* A special University Scholarship was provided by the Corporation for M. Charles Cestre, of the University of Paris, student of English. The award of this scholarship, which is in effect the remission of the tuition fee, was made in recognition of the fact that American students have for many years received free tuition at the French universities.

eight fellowships* (including five John Harvard Fellowships) and fifty-three scholarships†. Of these fellowships, fifteen are held by Non-Resident Students. Thirteen fellowships and all the scholarships are held by Resident Students.

The names of the holders of fellowships during the two academic years 1896-97 and 1897-98, with statements as to the present occupation of each, follow:—

1896-97.

1897-98.

John Harvard Fellowships.

JULIAN LOWELL COOLIDGE.

A.B. 1895, S.B. (*Oxford Univ.*) 1897. — Non-Res. Gr. Stud., 1895-96. — Student of Mathematics at Balliol College, Oxford. Teacher in the Groton School, Groton, Mass.

ABRAHAM PIATT ANDREW, Jr.

A.B. (*Princeton Univ., N. J.*) 1895, A.M. 1896. — Res. Gr. Stud., 1892-97. Henry Bromfield Rogers Memorial Fellow, 1894-96; Assistant in Economics, 1896-97. Student of Economics in London.

GEORGE HENRY CHASE.

(See Van Rensselaer Fellowship, 1896-97).

ALLERTON SEWARD CUSHMAN.

S.B. (*Worcester Polytechnic Institute*) 1893, A.M. 1897. — Res. Gr. Stud., 1896-97. — Instructor in Chemistry, 1892-96, Washington University, Mo. — Townsend Scholar, 1895-97.

Student of Chemistry at this University.

WALTON BROOKS McDANIEL.

A.B. 1893, A.M. 1894. — Res. Gr. Stud., 1892-96. — Assistant in Classics, 1896-97. Student of Classical Philology in Europe.

JAMES KELSEY WHITTENORE.

A.B. 1895, A.M. 1896. — Res. Gr. Stud., 1895-97. — Instructor in Mathematics, 1896-97. Student of Mathematics, in Paris.

Harris Fellowship.

FREDERICK PUTNAM GULLIVER.

A.B. 1893, A.M. 1894, PH.D. (*Natural History*) 1896. — Res. Gr. Stud., 1892-96. — Student of Phytography in Berlin. Science Master in St. Mark's School, Southborough, Mass.

JEREMIAH DENIS MATTHIAS FORD.

A.B. 1894, A.M. 1896, PH.D. (*Romance Philology*) 1897. — Res. Gr. Stud., 1894-97. Instructor in French, 1896-97. Student of Romance Philology, in Paris.

Rogers Fellowships.

FRANK DYER CHESTER.

A.B. 1891, A.M. 1892, PH.D. (*Semitics*) 1894. — Res. Gr. Stud., 1891-94; Non-Res., 1895-97. — Rogers Fellow, 1895-96. — Student of Semitic Languages in Hungary. U. S. Consul, Buda-Pesth, Hungary.

ARTHUR STODDARD COOLEY.

A.B. (*Amherst College*) 1891, A.M. 1893, PH.D. (*Classical Philology*) 1896. — Res. Gr. Stud., 1892-97. — Thayer Scholar, 1893-94; Shattuck Scholar, 1894-96; Morgan Fellow, 1896-98. — Instructor in Greek, 1896-97.

Student of Classical Philology, at Athens.

* The George Griswold Van Rensselaer Fellowship lapses, having been founded for the year 1896-97 only. For an account of the new Whiting Fellowships (three in number), established by gift of the late Professor Harold Whiting, see Report of the Dean of the Faculty of Arts and Sciences, p. 101.

† Or, exclusive of the five John Harvard Fellowships, a Rogers Fellowship without stipend, and the Supplementary Foundations, to twenty-one fellowships and fifty scholarships.

1896-97.

1897-98.

Rogers Fellowships (*continued*).

WILLIAM HENRY SCHOFIELD.

A.B. (*Victoria Univ.*) 1889, A.M. 1893, PH.D. (English Philology) 1896. — Res. Gr. Stud., 1892-95; Non-Res., 1893-97. — Morgan Fellow, 1893-95; Rogers Fellow, 1895-96.

Instructor in English at this University.

OLIVER MITCHELL WENTWORTH SPRAGUE.

A.B. 1894, A.M. 1896, PH.D. (Economics) 1897. — Res. Gr. Stud., 1894-97. — University Scholar, 1894-95; Henry Lee Memorial Fellow, 1895-96; Thayer Scholar, 1896-97.

Student of Economic History, in London.

MACY MILLMORE SKINNER.

A.B. 1894, A.M. 1896, PH.D. (Semitics) 1897. — Res. Gr. Stud., 1894-97. — Townsend Scholar, 1894-95; University Scholar, 1895-96; Shattuck Scholar, 1896-97. — Assistant in Semitic Languages, 1894-97. — Student of Semitic Languages and History, in Strassburg.

Parker Fellowships.

CHARLES LEONARD BOUTON.

S.B. (*Washington Univ.*) 1891, A.M. 1896. — Gr. Res. Stud., 1894-95; Non-Res., 1896-97. — University Scholar, 1894-95; Morgan Fellow, 1895-96.

Student of Mathematics at Leipzig.

REGINALD ALDWORTH DALY.

A.B. (*Victoria Univ.*) 1891, S.B. (*ibid.*) 1893, A.M. 1895, PH.D. (Natural History) 1896. — Res. Gr. Stud., 1892-95; Non-Res., 1896-97. — Instructor in Geology, 1895-96.

Student of Geology and Petrography at Heidelberg.

HERBERT SPENCER JENNINGS.

S.B. (*University of Michigan*) 1893, A.M. 1895, PH.D. (Natural History) 1896. — Res. Gr. Stud., 1894-95; Non-Res., 1896-97. — Assistant in Zoölogy, 1894-95. — Morgan Fellow, 1895-96. — Student of Zoölogy at the University of Jena.

Professor of Biology, Montana College of Agriculture and the Mechanic Arts.

JAMES SULLIVAN, JR.

A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-95; Non-Res., 1896-97. — Assistant in History, 1894-95. — Kirkland Fellow, 1895-96. — Student of History and Political Science in Paris.

Instructor in History and Palaeography at this University.

CHARLES LEONARD BOUTON.

Reappointed.

REGINALD ALDWORTH DALY.

Reappointed.

HENRY AUGUSTUS TORREY.

A.B. (*University of Vermont*) 1893, A.M. 1896, PH.D. (Chemistry) 1897. — Res. Gr. Stud., 1893-94, 1895-97. — Derby Scholar, 1894-95; Thayer Scholar, 1896-97.

Student of Chemistry in Leipzig.

JOHN ALBRECHT WALZ.

A.B. (*Northwestern University, Ill.*) 1893, A.M. 1895, PH.D. (Germanic Philology) 1897. — Res. Gr. Stud., 1894-97. — Scholar of the Harvard Club of Chicago, 1894-95. — Instructor in German, 1896-97.

Student of Germanic Philology and Literature, in Berlin.

Kirkland Fellowship.

HARRIS EASTMAN SAWYER.

A.B. 1891, A.M. 1894, PH.D. (Chemistry) 1895. — Res. Gr. Stud., 1892-95; Non-Res., 1896-97. — Student of Organic Chemistry in Copenhagen, Denmark.

Expert in Chemistry (Ferments), Boston.

GEORGE DAVIS CHASE.

A.B. 1890, A.M. 1895, PH.D. (Comparative Philology) 1897. — Res. Gr. Stud., 1894-97. — Shattuck Scholar, 1895-97.

Student of Comparative Philology in Leipzig.

Walker Fellowship.

OLIVER BRIDGES HENSHAW.

A.B. 1893, A.M. (*University of California*) 1894. — Res. Gr. Stud., 1893-95; Non-Res., 1896-97. — University Scholar, 1895-96. — Student of Metaphysics in Berlin.

On the staff of the "*Coenopoietan University*," Irvington, N. Y.

WILLIAM BRIGGS SAVERY.

A.B. (*Brown University*) 1896. — Res. Gr. Stud., 1896-97. — Assistant in Philosophy, 1896-97.

Student of Philosophy, in Berlin.

1898-97.

1897-98.

Morgan Fellowships.**JOHN HENRY BOYNTON.**

A.B. 1890, A.M. 1894, PH.D. (English Philology) 1897. — Res. Gr. Stud., 1893-97. Assistant in English, 1894-96. — Thayer Scholar, 1896-98. — Student of English at this University.
Instructor in English at Syracuse University.

FREDERICK ORVILLE GROVER.

A.B. (*Dartmouth College*) 1890, A.M. (*ibid.*) 1893, A.M. 1895, A.M. 1896. — Res. Gr. Stud., 1894-97. — University Scholar, 1896-98. Student of Botany at this University.

FRED CLAYTON WAITE.

A.B. (*Adelbert College*) 1892, A.M. (*Western Reserve University*) 1894, A.M. 1896. — Res. Gr. Stud., 1894-97. — University Scholar, 1896-98. — Student of Zoölogy at this University.
Assistant in Zoölogy.

ARTHUR MAYER WOLFSON.

A.B. 1893, A.M. 1897. — Res. Gr. Student, 1896-97. — Townsend Scholar, 1896-98. — Student of History.
Now continuing his studies at this University, as Morgan Fellow.

FRANK WATTS BANCROFT.

A.B. (*University of California*) 1894, A.M. (*ibid.*) 1896, A.M. 1897. — Res. Gr. Stud., 1896-97. — Virginia Barret Gibbs Scholar, 1896-97.
Student of Zoölogy at this University.

CLARENCE POWERS BILL.

A.B. (*Adelbert College*) 1894, A.M. (*Western Reserve University*) 1895, A.M. 1896. — Res. Gr. Stud., 1895-97. — University Scholar, 1895-98; Shattuck Scholar, 1896-97.
Student of Classical Philology at this University.

WILLIAM ALLAN NEILSON.

A.M. (*University of Edinburgh*) 1891, A.M. 1896. — Res. Gr. Stud., 1896-97. — University Scholar, 1896-97.
Student of English at this University.

ARTHUR MAYER WOLFSON.

Reappointed.

Tyndall Fellowship.**WILLIAM DUANE.**

A.B. (*University of Pennsylvania*) 1892, A.B. 1893, A.M. 1896, PH.D. (*Univ. of Berlin*) 1897. — Res. Gr. Stud., 1896-98; Non-Res., 1896-97. — John Tyndall Fellow, 1896-98.
Now residing in Cambridge.

HARRISON HITCHCOCK BROWN.

A.B. (*Amherst College*) 1889, A.M. 1896. — Res. Gr. Stud., 1894-97. — Townsend Scholar, 1896-97.
Student of Physics at this University.

Robert Treat Paine Fellowship.**ENOCH HOWARD VICKERS.**

A.B. (*West Virginia University*) 1890, A.B. 1893, A.M. 1894. — Res. Gr. Stud., 1896-98; Non-Res., 1896-97. — University Scholar, 1894-96; Paine Fellow, 1896-98. — Student of Social Science and Economics in Paris.
Student of Economics in Paris.

JOHN EDWARD GEORGE.

PH.D. (*Northwestern University*) 1896, A.M., 1897. — Res. Gr. Stud., 1896-97. — Scholar of the Harvard Club of Chicago, 1896-97.
Student of the Ethical Problems of Society, at this University.

Henry Lee Memorial Fellowship.**GUY STEVENS CALLENDER.**

A.B. (*Oberlin College*) 1891, A.B. 1893, A.M. 1894, PH.D. (Economics) 1897. — Res. Gr. Stud., 1893-96, 1896-97. — Toppan Scholar, 1893-94; Lee Memorial Fellow, 1894-96. — Instructor in Economics at Wellesley College, 1896-98. — Student of Economics, History and Government at this University.
Instructor in Political Economy at this University.

HERBERT CAMP MARSHALL.

A.B. (*Osio Wesleyan University*) 1891, A.M. 1894, A.M. 1896. — Res. Gr. Stud., 1894-97. — Assistant in Economics, 1896-98. — Townsend Scholar, 1896-97.
Student of Political Economy at this University.

Ozias Goodwin Memorial Fellowship.**THEODORE CLARKE SMITH.**

A.B. 1892, A.M. 1895, PH.D. (History) 1896. — Res. Gr. Stud., 1892-94, 1895-96; Non-Res., 1896-97. — Fellow at University of Wisconsin, 1894-96. — Student of Political Science in Paris.
Instructor in History, University of Michigan.

ARTHUR LYONS CROSS.

A.B. 1895, A.M. 1898. — Res. Gr. Stud., 1895-97. — Assistant in History, 1896-97.
Student of Constitutional Law in Berlin.

1896-97.

1897-98.

Henry Bromfield Rogers Memorial Fellowship.**EDWARD HENRY WARREN.**

A.B. 1895, A.M. (*Columbia University*) 1896.
— Res. Gr. Stud., 1896-97. — Instructor in
Sociology, University of City of New
York, 1895-96. — Student of History and
Political Science at this University.
Assistant in Economics and first-year Law
Student.

MORTON ARNOLD ALDRICH.

A.B. 1895, PH.D. (*Univ. of Halle*) 1897. —
Student at the Universities of Berlin,
Munich, and Halle. 1895-97.
Student of Ethics in its relations to Sociology
at this University.

Hemenway Fellowship.**FRANK RUSSELL.**

A.B. (*Iowa State Univ.*) 1895, S.M. (*ibid.*)
1896, A.M. 1896, A.M. 1897. — Res. Gr.
Stud., 1895-97. — Robert C. Winthrop
Scholar, 1895-96. Student of American
Archaeology and Ethnology at this Uni-
versity.
Instructor in American Archaeology at this
University.

FRANK RUSSELL.

Reappointed.

**George Griswold Van Rensselaer
Fellowship (for 1896-97).****GEORGE HENRY CHASE.**

A.B. 1896, A.M. 1897. — Non-Res. Gr. Stud.,
1896-97. — Student of Classical Philology
at the American School of Classical
Studies in Athens.
Student of Classical Archaeology in Athens,
as John Harvard Fellow and as Fellow of
the American School.

**Whiting Fellowships
(founded 1897).****JOHN EMERSON BURBANK.**

A.B. (*Bowdoin College, Me.*) 1895, A.M.
(*ibid.*) 1897. — Assistant in Physics at
Bowdoin College, 1896-97.
Student of Physics at this University.

SILAS ELLSWORTH COLEMAN.

A.B. (*University of California*) 1896. — Res.
Gr. Stud., 1896-97. — Scholar of the Har-
vard Club of San Francisco, 1896-97.
Student of Physics at this University.

HAROLD EDWARDS.

A.B. 1896. — Res. Gr. Stud., 1896-97. —
Thayer Scholar, 1896-97.
Student of Physics at this University.

The majority — eleven — of the twenty-one holders of fellowships in 1896-97 are now engaged in teaching, — eight in colleges or universities (including five at this University), and three in schools. Five are continuing their studies as graduate students at this University, four being holders of fellowships; the sixth has entered the Law School, the seventh continues his studies while holding the office of United States Consul in a European city, the eighth is a scientific expert, the ninth is continuing his studies abroad, and the occupation of the tenth is as yet undetermined.

Of the twenty-eight gentlemen appointed to fellowships in 1897-98, eight held fellowships in 1896-97 or in some previous year; four were reappointed; and one was transferred from another fellowship. Twenty-one held no fellowship in 1896-97, though all — except two

—held a scholarship or some appointment with stipend at the University: ten of this number had been assistants or instructors. All the appointees—except three—have a Harvard degree. Eight are Doctors of Philosophy, five having received the degree from Harvard in 1897; two others, in a previous year; and the eighth, from a foreign University in 1897. Eleven are Bachelors of Arts, and twenty-three are Masters of Arts, of Harvard University. Every Harvard A.B.—except one—is also an A.M.

The following Table gives the usual statistics relative to the applications and appointments for the three successive years, 1895-96, 1896-97, and 1897-98:—

TABLE VI. — FELLOWSHIPS AND SCHOLARSHIPS (1895-97).

1. *Applications and Appointments.*

	1895-96.	1896-97.	1897-98.
Spring applicants for reappointment or promotion	48	48	50
Spring applicants for a first appointment . .	212	250	225
Later applicants	49 309	88 331	29 304
Appointed to fellowships	18	19	21
Appointed to scholarships	50	48	50
Appointed instructors or assistants	21 89	17 84	20 91
Deduct for repetitions	2	1	2
	87	88	89
Entered or continued in the Graduate School without receiving any of the above-named appointments	48	51	55
Entered undergraduate classes of Harvard College	18	6	8
Entered other departments of the University	5 61	8 65	10 73
Applicants who were at the University in the year following their applications . .	148	149	162
Applicants not at the University in that year	161	182	142
	309	331	304

2. *Classification of Applicants and Appointees.*

	1895-96.		1896-97.		1897-98.	
	Applicants.	Appointees.	Applicants.	Appointees.	Applicants.	Appointees.
Students of Philology	125	23	122	24	101	23
Students of Philosophy, History, or Political Science	95	20	109	20	108	19
Students of Mathematics, Physics, or Chemistry	51	14	59	14	60	19
Students of Natural History	36	11	39	9	38	10
Students of other branches, or unclassified	2	0	2	0	2	0
	309	68	331	67	304	71
Students in the Graduate School	98	45	119	46	104	43
Students in Harvard College	28	6	39	8	29	6
Students in other Departments of the University	3	0	3	0	6	1
Former students in some Department of the University	26	9	31	5	27	2
Persons never previously members of the University	154	8	149	8	136	19
	309	68	331	67	304	71
Harvard Bachelors of Arts or Science, not previously graduated elsewhere	43	18	38	19	38	15
Harvard Bachelors of Arts or Science, previously graduated elsewhere	20	8	29	10	23	5
Graduates of other institutions, not Harvard Bachelors of Arts or Science	196	34	201	36	187	47
Undergraduates of Harvard College, not already graduated elsewhere	23	4	21	2	21	4
Undergraduates of other institutions and other non-graduates	27	4	42	0	35	0
	309	68	331	67	304	71

NOTE. — The John Harvard Fellows are not included in the number of appointees.

Account is here taken only of fellowships and scholarships awarded on the nomination of the Faculty of Arts and Sciences, and not of the several Supplementary Foundations (in 1897-98, six in number) administered by other bodies but often granted to graduate students.

INSTRUCTORSHIPS AND ASSISTANTSHIPS.

Many members of the Graduate School serve the University as instructors and assistants, by regular appointment of the Corporation. In 1896-97, nine members of the School were appointed to instructorships, and forty-five to assistantships. In the current year, the numbers are, respectively: nine instructors, and thirty assistants. Table VI shows that many of the annual appointments to these positions are made from among applicants for fellowships and scholarships in the Graduate School. Under the existing regulations, no one may hold at the same time an instructorship (or an assistantship) and a fellowship or scholarship. All instructors and assistants who are appointed by the Corporation receive a salary. Instructors pay no tuition fees for instruction received, but assistants are charged a tuition fee which is proportioned to the amount of instruction which they can find time to receive.

Of the three hundred and six members of the School in 1896-97, one hundred and twenty-seven — about forty per cent. of the whole number — were holders either of instructorships, assistantships, fellowships or scholarships, while one hundred and seventy-nine received no regular stipend from the University.

THE MEMBERSHIP OF THE GRADUATE SCHOOL.

A large variety of men, with various aims, resort to the Graduate School to pursue advanced studies.* Leaving now out of consideration the very small number of recent graduates of other colleges who enter the Graduate School to obtain the degree of Bachelor of Arts — in 1896-97 hardly more than five per cent. of the whole number — we may note the following classes of persons in the School: —

I. The first group consists of young men, mostly Bachelors of Arts of Harvard or of other good colleges, recently graduated, who are carrying on the liberal studies begun by them as undergraduates,

* As an indication of the maturity of Graduate Students who receive the higher degrees the subjoined Table is not without interest:

TABLE VII. — AGE OF MASTERS OF ARTS AND DOCTORS OF PHILOSOPHY: 1897.

	20	21	22	23	24	25	26	27	28 and over	Total.
A.M's	8	6	11	10	12	7	9	31	94
Ph.D's	8	1	4	3	16	25

only in a more specialized form and without distinct reference to a professional career.

In 1896-97 there were about fifty such persons in the School, and they were distributed among all the Departments of the Faculty of Arts and Sciences.

II. The second group is made up of men of the same grade of academic advancement as the foregoing and of others that may already have pursued advanced studies, who intend to become teachers in universities, colleges, and the higher secondary schools. The greater number of these persons think the best preparation for their work to be the mastery of some field of science or learning, and they seek first to become independent scholars and original investigators, qualified to contribute to knowledge as well as to transmit it. Many of them also pursue, in connection with their special studies, courses of instruction in pedagogy.

In 1896-97 there were about one hundred and eighty such persons in the School, or two-thirds of its entire membership.

III. The third group contains men of a similar academic standing with those named in the previous paragraphs, who intend to become specialists in literature, history, philosophy and science, without also expecting to become teachers.

In 1896-97 there were about fifty-five such persons in the School.

IV. The fourth and last group consists of men at present engaged in the active pursuit of a profession, who seek by work in the Graduate School either the better to qualify themselves for their special vocation, or to extend in general the range of their interests.

In 1896-97 there were at least forty-six persons of this class in the School, of whom thirty-six were teachers in service in schools and colleges near Boston; ten were ordained clergymen, for the most part in charge of parishes. The clergymen — representing the Roman Catholic, Protestant Episcopal, Congregational, Baptist, and Swedenborgian churches, with two Hebrew Rabbis — were students either of philosophy or of economics and sociology. Clergymen who pursue theological studies with a view to becoming professors in theological institutions are expected to register, as a rule, in the Divinity School.

Of the entire number of members of the School, it appears that a little more than one-half were carrying on their studies with distinct reference to a higher degree, which was to be obtained either in 1897 or in some later year. The students in the School who are studying without reference to a degree are, however, among its most valued members.

The facilities afforded by the University, through the Graduate School, to graduates of reputable colleges who live in and near Boston for receiving, while engaged in the practice of their professions, advanced instruction under competent guidance in the great fields of learning and science and of gaining access under favorable conditions to the best library for scholars in the United States, need to be more fully appreciated in our community.

DEGREES IN THE GRADUATE SCHOOL.

The degrees now administered through the Graduate School are those of Bachelor of Arts, Master of Arts, Doctor of Philosophy, and Doctor of Science. It is probable that the degree of Master of Science will be added to this list in the current year.

The present administration of the degrees of Bachelor of Arts and of Master of Arts in the College and in the Graduate School exhibits some anomalies that evidently need remedy. We have now, on the one hand, certain students in Harvard College (who have completed in three years the requirements for the degree of Bachelor of Arts) obtaining the degree of Master of Arts in three different ways: (1) Some of these "three-year men" obtain the degree of Bachelor of Arts at the close of their Junior year, and at once enter the Graduate School, and after completing there an additional year of approved study, obtain the degree of Master of Arts. (2) Those of another group obtain leave of absence from Harvard College for their Senior year, and enter the Graduate School (as they also may enter one of the Professional Schools) there to complete a year's work. At the end of this year they receive the degree of Bachelor of Arts with the majority of their classmates, and a year later — without further study or residence — that of Master of Arts — the so-called "postponed A.M." (3) Those of a third group remain in residence in the Senior class of Harvard College, but do there a year's additional work, for which they also ultimately receive a "postponed A.M." a year after receiving the degree of Bachelor of Arts.

On the other hand, of the graduates of other colleges who come to the University to study under the Faculty of Arts and Sciences, some now enter the Graduate School and obtain the degree of Bachelor of Arts after one year's work, while yet others enter the Senior class duly to obtain the degree of Bachelor of Arts. An extreme but frequent result of these conditions is that graduates of other colleges will be registered in the Graduate School, doing work for the degree of Bachelor of Arts, while many Harvard students in the Senior

class are doing work for the Master of Arts' degree. The distinction between graduate and undergraduate work is thus made obscure, and both Harvard College and the Graduate School are deprived each of men who belong to the other. (A "graduate" student is thus rated in academic advancement, in not a few cases, fully a year behind an "undergraduate.") The degree of Master of Arts thereby loses its distinctive quality and character, and in its standing as a higher degree is belittled, while that of Bachelor of Arts secures advantages, such as they are, to which it is not entitled. These irregularities and inconsistencies, in the opinion of the Administrative Board, should be corrected. All candidates for the degree of Master of Arts should be required to register in a graduate department of the University, either the Graduate School or one of the other Professional Schools, and all studies pursued by students as undergraduates should be credited to the degree which is awarded on the completion of the undergraduate period of study — the degree of Bachelor of Arts. This procedure, if adopted, would strengthen in many ways the degree of Bachelor of Arts for men who remain in Harvard College four years. It would also mark sharply the difference between men who spend three years in Harvard College and those who spend four years there.

The degree of Bachelor of Arts — but not that of Bachelor of Science — as already stated, is granted in the Graduate School. The practice began in 1887, since which time the degree has been awarded to a small number of persons each year, a number that since 1895 has been diminishing: in 1887, there were two cases; in 1888, two; in 1889, six; in 1890, three; in 1891, seven; in 1892, fourteen; in 1893, seventeen; in 1894, nineteen; in 1895, twenty-four; in 1896, sixteen; in 1897, fifteen; in the current year there are only eleven candidates for this degree. The Administrative Board is unanimously of the opinion that the practice of bestowing this degree through the Graduate School should be discontinued, and that graduates of other colleges who seek the Harvard A.B. — a degree that carries with it the assignment of its recipient to a College class — should be required to register in Harvard College, and should not be allowed to register in the Graduate School. The practice was undoubtedly useful in the infancy of the School, when the School was feeling its way, but it has now outlived its usefulness. It tends to draw into the School men who do not belong there. It is, from all points of view, an anomaly: it lowers the character and standing of the School, and deprives it, at least in this respect, of its right to the title of "Graduate School." The Administra-

tive Board would by no means exclude from the School properly qualified persons — graduates of reputable colleges and other persons of equivalent education — who wish to pursue undergraduate studies, even if these be miscellaneous and elementary, provided they carry on these studies without reference to a degree. The degrees, however, of the Graduate School should be graduate degrees, given for graduate study.

While recommendations for the degree of Master of Arts are made on the nomination of the Administrative Board of the Graduate School, those for the degrees of Doctor of Philosophy and Doctor of Science are made on the nomination of the several Divisions and Departments of the Faculty. In the year past, many of the Division Committees have given especial attention to their requirements for the degree, and have reduced these to greater system. A pamphlet containing a clear statement of the regulations of the different Departments, with explanatory notes concerning the degree of Doctor of Philosophy, would serve many useful purposes.

In my last Report, I remarked that while the problem of the registration of candidates for the higher degrees seldom offered difficulties, some difficulties were likely to arise in the case of students who come to the University to pursue in the Professional Schools, or chiefly under the direction of teachers in the Professional Schools, advanced non-professional scientific studies for which, according to the usage of modern universities, they are entitled to recognition. Provision has been made within the year closed by which these difficulties are removed. Students who seek the degree of Doctor of Philosophy in advanced studies pursued chiefly under members of the Faculties of the Professional Schools, are now allowed to retain their registration in the School where these studies lie, although as candidates for the degree they are under the immediate charge of Departmental Committees of the Faculty of Arts and Sciences — Committees which are responsible for them to that Faculty. These Committees increase their membership by the addition of specialists, to meet the cases of candidates for whom they cannot provide without such addition, and the Committees, thus enlarged, conduct all examinations. For example, in 1896-97 a candidate for the degree of Doctor of Philosophy in Biblical and Patristic Greek has retained his registration in the Divinity School, being, however, in charge of the Division Committee on Ancient Languages of the Faculty of Arts and Sciences, increased by the addition of two members of the Divinity Faculty. In like manner,

candidates registered in the same School for the degree of Doctor of Philosophy in the History and Philosophy of Religion have been taken in charge by the Division of Philosophy. It seems probable that greater system and coherence will be given in the course of the current year to this aspect of the work of the Faculty, and that programmes will be duly announced for subjects in which the degree in Philosophy may be properly taken that are not specifically provided for by the present organization of Departmental and Division Committees.

In my last Report, a recommendation was made that a catalogue of holders of degrees obtained through the Graduate School and of former members of the School should be issued. Such a catalogue has been prepared and will be published in the course of the present year. The organization, however, of degree holders and other former members of the School into a Graduate School Alumni Association, also recommended in my Report, has not yet been perfected. With a view to promoting a greater *esprit du corps* among the members of the Graduate School and of facilitating the making of personal acquaintances, the Administrative Board arranged in the summer for an opening meeting and reception for members of the School and invited guests at the beginning of the current year. The meeting was duly held on October 7, and the chief address on this occasion was that of Professor Kittredge upon the late Professor Child; other addresses were made by the President and by the Dean of the School. It is hoped that a meeting of this character may become one of the permanent institutions of the School.

JOHN HENRY WRIGHT, *Dean*.

NOVEMBER 13, 1897.

THE DIVINITY SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — AS Dean of the Divinity School, I have the honor to present the following report for the academic year 1896-97:—

Thirty-eight students were connected with the School. These were distributed as follows:—

Resident Graduates	16	Junior Class	8
Senior Class	4	Special Students	4
Middle Class	6		

Of the members of the Senior Class one was a graduate of the Yale Theological Seminary, another of that of Princeton. The number of graduate students present was thus eighteen.

Twenty-two colleges were represented, namely:—

Amherst	1	Iowa	2
Bates	1	Lafayette	1
Bethel Baptist Theological Seminary, Sweden	1	University of Michigan	2
Boston University	1	Mount Union	1
Brown University	1	Ohio Wesleyan University	1
Colgate University	1	University of New Brunswick	1
Dickinson	1	University of North Carolina	1
Elon	1	Randolph Macon	1
Harvard University	10	Trinity	1
Hope	1	Yale University	2
University of Indianapolis	1	Williams	1

Eleven Theological Seminaries were represented as follows:—

Andover	2	Harvard Divinity School	1
Boston University	1	University of Indianapolis	1
University of Chicago	1	Meadville	6
Columbia Seminary	1	Ohio Wesleyan	1
Cambridge Episcopal	2	Princeton	1
Hamilton	1		

It has been necessary for some years to have an assistant in the department of homiletics. This was owing to the fact that the number of students was slowly increasing, and that the time of Professor Peabody was more and more occupied by other duties. Edward Hale, B.D., has filled this position very effectively. He

was however so situated that he could give little time to its duties, and that at a cost to himself of a long journey once a fortnight. I am happy to be able to report that last year he was made Assistant Professor of Homiletics, and is now a resident teacher.

The vacancy in the department of elocution has been very acceptably filled by Samuel S. Curry, Ph.D. It is greatly to be regretted that, owing to expenditures that seemed necessary in other directions, the School has been able to command only a few hours of Dr. Curry's time. Though the study of elocution cannot rank among scholarly pursuits, and though, except when taught by the best masters, it may do more harm than good, yet few things are more essential to the success of the preacher than a good delivery. For the lack of it many of the best minds and spirits in the profession have failed to interest the world. The teacher should be able to study each man by himself, so as to be able to aid in correcting his special faults and developing his special powers. This Dr. Curry has done so far as the limited time at his disposal has permitted. It is to be hoped that this department may soon be put upon a better footing.

Certain changes were made last June in the method of conducting the annual meetings of the Alumni which promise to be of great service to the School. The most important of these were the substitution of a dinner with addresses for the informal collation that had been customary, and the making a place in the meeting for papers by the graduating class. Many graduates had greatly regretted the loss of the opportunity that was furnished by the old Visitation day for becoming acquainted with the new men; and the arrangement referred to is designed to supply this lack. The attendance at the meeting was much greater than has been usual, and the changes were heartily welcomed. It is to be hoped that these meetings in the future will do more than they have in the past to keep alive the interest of the Alumni in the School. An equally important change was made in the composition of the Association of the Alumni. It was voted that men who had been connected with the School for one or more years, but had not received its degree, might, after consultation with the Faculty, be elected Associate Members with all the privileges of membership. It is hoped that through this arrangement those who are included in it will retain a greater interest in the School than if their organic relation with it had ceased.

Thirty-two elections of College studies were made by Divinity students. Of these seventeen were in Philosophy. The rest were very scattering.

I referred in my last report to an arrangement by which two College courses, approved by the Faculty for that purpose, might be counted for the degree of B.D. Nine of the elections named above were designed to be applied in this way and were approved by the Faculty. Of these eight were in Philosophy and one in Classical Philology.

There were 218 elections by College students of courses that were originally designed for the Divinity School.

The address at the opening of the School was by Professor Platner. His subject was Albert Ritschl and the Study of Early Church History.

I add in a tabular form a statement of all the courses offered last year, and also of those that are given in alternate years, in order to show the choice that is open to students. The number of students attending the several courses is also given. Members of the College and of the Graduate School are placed under the same heading. Only those who took part in the final examinations are included.

COURSES OF INSTRUCTION, 1896-97.

OLD TESTAMENT.

Professor LYON. — Hebrew. — Davidson's Introductory Hebrew Grammar. Explanation of parts of Genesis and of the Psalm-book. Three hours.

8 Div., 8 Col.

Professor TOY. — Hebrew (second course). — Interpretation of parts of the Prophets and Poetical Works. Text-criticism. Two hours.

2 Div., 8 Col.

Professor LYON and Mr. SKINNER. — Jewish Aramaic. Kantzsch's *Biblisch-Aramäische Grammatik*. — Interpretation of parts of Ezra, Daniel, and the Targums. One hour.

2 Div., 1 Col.

Professor LYON. — History of Israel, political and social, till the death of Herod the Great. Text-books, lectures, and theses. Two hours.

8 Div., 128 Col.

Professor TOY. — History of pre-Christian Hebrew Literature. Two hours.

8 Div., 2 Col.

Professor TOY. — History of the Hebrew Religion, with comparison of other Semitic religions. Two hours.

8 Div., 2 Col.

Dr. REISNER. — Assyrian. Lyon's *Assyrian Manual*. Delitzsch's *Assyrian Grammar*. Abel and Winckler's *Keilschrifttexte*. Two hours.

1 Div., 2 Col.

Professor LYON. — [Assyrian (second course). — Delitzsch's *Assyrian Grammar*. The Chaldean Epic. Letters and Commercial Documents. Two hours.]

Research course. A course of special study arranged for any properly prepared student.

The Semitic Conference holds meetings twice a month throughout the academic year. The subject for 1896-97 was Hebrew Archaeology. There were essays and discussions. In addition to the regular work letters from foreign correspondents were read from time to time, and notes were presented calling attention to new publications, to travels, explorations, and discoveries, and to additions to the Semitic Museum and the Semitic Library. The meetings were held in the Semitic Library Room.

10 Div., 4 Col.

NEW TESTAMENT.

Professor THAYER. — New Testament Introduction. — The origin, contents, and history of the New Testament writings, together with the formation of the Canon. One hour. 4 Div.

Mr. ROPES. — Outlines lecture on theological encyclopædia and literature; the characteristics of the New Testament Greek; the Septuagint; textual criticism; study of the Gospels. One hour. 7 Div.

Mr. ROPES. — The Teaching of Jesus as contained in the Parables. One hour. 8 Div.

Mr. ROPES. — The Synoptic Gospels, with special reference to the Synoptic Problem.

Professor THAYER. — The Gospel and Epistles of John. Two hours.

Mr. ROPES. — The Apostolic Age. — Study of the Acts of the Apostles. Two hours. 2 Div., 1 Col.

Professor THAYER. — Outline lectures of the life of Paul. — Study of the Four Great Epistles. Two hours. 1 Div.

Mr. ROPES. — The Minor Pauline Epistles. Two hours.

Mr. ROPES. — The Pastoral Epistles. One hour.

Professor THAYER. — The Epistle to the Hebrews. Two hours.

Mr. ROPES. — The Catholic Epistles. One hour.

Mr. ROPES. — The Apocalyptic literature, with special study of the Revelation of John. Two hours. 8 Div.

Professor THAYER. — Biblical Interpretation. — Its history, methods, principles, and their application in the study of difficult and debated New Testament passages. Two hours.

Professor THAYER. — Biblical Theology of the New Testament, centring upon the doctrines of sin and redemption. Two hours. 4 Div.

Professor THAYER. — History of the English Bible, with detailed study of the Revised New Testament. One hour.

Professor THAYER. — Modern Lives of Christ. One hour half the year.

Professor THAYER. — Biblical Geography and Archaeology. One hour half the year.

Professor THAYER. — Selections from the Septuagint, with special reference to the use made of the Old Testament in the New. One hour.

Professor THAYER. — Selections from Greek and Latin writers of special interest to students of the New Testament. For example:—

- a. Plutarch on the Delay of the Deity in the punishment of the wicked.
One hour. 8 Div.
- b. Philo's *Legatio ad Gaium* and *In Flaccum*.
- c. Josephus against Apion.
- d. Selections from the Apocrypha of the Old Testament and of the New.
- e. Selections relating to the early history of the Canon.

Professor LYON and Mr. SKINNER. — Classical Aramaic (Syriac). Roediger's *Chrestomathia Syriaca*, ed 3. The Peshitto version of the New Testament. Two hours.

Professor THAYER. — Advanced study and research on such topics as the antecedents and aims of individual students may render advisable. 1 Div.

The New Testament Conference met on the second and fourth Monday evenings of every month to hear and discuss papers upon topics relating to the New Testament.

CHURCH HISTORY.

Professor PLATNER. — History of the Early Church, with special reference to the patristic literature. Two hours. 1 Div., 3 Col.

Professor EMERTON. — [The Mediaeval Church. — Formations of national churches in the Germanic states; establishment of the mediaeval papacy and its development to be the controlling force in European affairs; the Holy Roman Empire. Two hours.]

Professor EMERTON. — The Era of the Reformation in Europe from the rise of Italian Humanism to the close of the Council of Trent, 1550-1563. Two hours. 3 Div., 38 Col.

Professor PLATNER. — [History of the Church since the Council of Trent. Two hours.]

Professor EMERTON. — History of Christian Doctrines. Two hours. 4 Div.

Professor EMERTON. — Selected topics from the Canon Law, with reference also to the principles of Protestant Church Law. One hour.

Professor PLATNER. — Selections from the early Christian Apologists. One hour. 4 Div., 8 Col.

Professor PLATNER. — Selections from the Ecclesiastical History of Eusebius. One hour. 4 Div.

Professor EMERTON. — Advanced study and research in connection with the Seminary in Mediaeval History. Special topic: The "Erasmian Reform." Two hours. 2 Div.

SOCIAL QUESTIONS.

Professor PRABODY. — The Ethics of the Social Questions. — The modern social questions: Charity, the Family, Temperance, and various phases of the Labor question in the light of ethical theory. — Lectures, special researches, and required reading. Three hours. 8 Div., 46 Col.

Professor PRABODY. — Sociological Seminary. — Subject for the year: The Christian Doctrine of the social order. One hour. 4 Div., 1 Col.

COMPARATIVE STUDY OF RELIGIONS.

Professor EVERETT.—Comparative Study of Religions, particularly the Vedic Religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese Religions. Two hours. 9 Div., 6 Col.

THEOLOGY.

Professor EVERETT.—The Psychological Basis of Religious Faith. One hour. 8 Div., 6 Col.

Professor EVERETT.—Systematic Theology. Theism and the special content of Christian faith. An elaborate essay on some theological subject is expected from each student taking this course. Three hours. 8 Div., 8 Col.

HOMILETICS AND PASTORAL CARE.

Mr. HALE.—The structure and analysis of sermons. 5 Div.

Professor PEABODY.—Each student writes five or six sermons during the year, three of which are preached before the two upper classes and criticised by students and instructor; the rest are criticised privately, both as to composition and delivery, in preparation for the public preaching named below. This course may be taken twice. 8 Div.

Professor PEABODY.—[The Minister as Pastor, and the history of Christian worship. One hour.]

Professor PEABODY.—The Minister as Preacher, and the history of Christian preaching. One hour. 5 Div.

Mr. HALE.—The Minister as Organizer and Director of Church Activities. One hour. 4 Div.

ELOCUTION.

Mr. CURRY met the students, individually or in groups, for instruction in Vocal Training and Expression. Three hours. 12 Div.

GENERAL EXERCISES.

Evening Prayers, conducted by professors and students.

Worship and Preaching conducted by students in the Chapel of the School. Open to the public. Once a week.

Meetings for Religious Conference, conducted by students. Once in two weeks.

The record for the Divinity Library for the past year is as follows: During the year October 1st, 1896, to September 30, 1897, there were added to the Library: 293 volumes and 11 pamphlets by purchase; 106 volumes and 88 pamphlets by gift. October 1st, 1897, there were in the Library: 27,500 volumes and 5,640 pamphlets. During the year there were 2,333 titles catalogued in the author catalogue; and 59 in the subject catalogue. The smallness of the

latter number is due to the fact that the time of the Librarian has been very largely given to the work on the general catalogue of the School. During the year there were borrowed from the stack for home use 1,537 volumes; from the stack for hall use, 480 volumes; from the reserved books for over-night use 538 volumes.

During the last few years the Librarian has annually reported an increase both in the number of books taken from the library and in the average number taken by each student. This could not go on for ever. Last year there was a falling off in both these respects. The average was however higher than in any other year since the account has been kept, with the exception of the year before last.

I am happy to be able to report a gift of \$1,300 from The Society for Promoting Theological Education, the money to be expended in the purchase of books for the Library, and for work in the Library. The Society has repeatedly given money for this purpose; and without this help the work of cataloguing could not have been carried on without crippling the School in its other work.

In my last report it was stated that the tuition fee of the Divinity School had been raised from fifty dollars to one hundred and fifty, and considerations were suggested which went to show the probability that for this reason there would probably be a falling off in the number of students in the following year. I am happy to state that in spite of this change there is a registration of two more students this year than last.

C. C. EVERETT, *Dean.*

NOVEMBER 16, 1897.

THE LAW SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I have the honor of presenting my report upon the Law School for the academic year 1896-97.

The table on pp. 162, 163 gives the courses of study and instruction during the year, the text-books used, the number of exercises per week in each course, and the number of students who offered themselves for examination in each course at the end of the year.

During the year 2,963 volumes and 145 pamphlets have been added to the library. There are now in the stack two sets of the English reports, of the Federal reports, and of the reports of all of the States except West Virginia. In the reading room there is a third set of the English and Federal reports, and of the reports of twelve states. The library contained, September 1, 1897, about 41,000 volumes and 4,400 pamphlets.

The following table exhibits the growth of the School, during the last twenty-eight years, in the number of students, the number and percentage of college graduates, and in the number of colleges represented by their graduates. The figures of the current year will be increased by later entries.

The percentage of college graduates in the School may be not unfairly put at 91 by reckoning with the Harvard graduates twelve Harvard College Seniors, who, having anticipated nearly all the work of their senior year, are on leave of absence from the College, and registered in the Law School.

These Harvard Seniors are fewer by eight than in the year 1896-97. This is a welcome decrease. Any discussion of the general principle of permitting a college student to complete the four years' course in three years would be out of place in this report. But attention may fairly be called to the practice of granting leave of absence, during their senior year, to students who have completed sixteen and one-half of the eighteen courses required for the degree of A.B.; for under this practice Seniors on furlough registered in the Law School are obliged to divide their time between their College and their Law School work. As might be anticipated,

Year.	Whole No. of Students.	Total of College Graduates.	Harvard Graduates.	Graduates of other Colleges.	Non-Graduates.	Per cent. of College Graduates.	No. of Colleges represented.
1870-71	165	77	27	50	88	47	27
1871-72	138	70	34	36	68	51	25
1872-73	117	50	34	32	51	56	25
1873-74	141	86	49	37	53	61	25
1874-75	144	81	63	19	62	57	18
1875-76	173	93	60	33	60	54	25
1876-77	199	116	74	42	83	58	30
1877-78	192	121	80	41	75	62	30
1878-79	169	109	71	38	60	54	24
1879-80	177	118	90	28	59	66	30
1880-81	161	113	82	30	49	70	19
1881-82	161	99	66	33	62	61	22
1882-83	158	93	58	35	45	67	32
1883-84	150	105	75	30	45	70	21
1884-85	156	122	85	37	34	78	31
1885-86	158	122	83	39	30	77	29
1886-87	188	143	88	55	46	76	34
1887-88	225	158	102	56	67	70	32
1888-89	225	158	105	53	67	70	32
1889-90	262	189	122	67	78	71	41
1890-91	286	200	135	65	85	70	33
1891-92	370	257	140	117	118	69	46
1892-93	405	266	132	134	139	66	51
1893-94	357	270	131	139	88	76	56
1894-95	413	310	139	171	103	75	74
1895-96	475	380	171	209	95	80	82
1896-97	450	408	186	222	82	83	82
1897-98	546	454	227	227	59	89	76

these Seniors have not made a good record in the Law School. Of the twenty-eight who have registered in the School in the last two years only one obtained the honor mark. Three received the grade of "B," twelve the grade of "C." Two were conditioned in one subject, three in two subjects, two in four subjects, one in every subject. Five failed to try the examinations, and therefore disappeared from the School. This exhibit is much below the general average. While only 14 per cent. of these Seniors attained the grade of "A" or "B," 26 per cent. of the classes to which they belonged obtained one of these grades. It would be for the true interest of the men, as well as for the good of the Law School, if the practice of granting furloughs should be discontinued except in the case of Seniors who have completed their eighteen courses.

Instructors.	Studies and Text-books.	Exercises per week.	Number of students examined.
First Year.			
Prof. Ames	Contracts. Cases on Contracts: Langdell, vol. 1, 2d ed., Williston, vol. 1 . .	3	181
Prof. Gray	Property. Gray's Cases on Property, vol. 1, 2	2	188
Prof. Smith	Torts. Cases on Torts: Ames, vol. 1, 2d ed., Smith, vol. 2	2	195
Prof. Beale	Civil Procedure at Common Law. Ames's Cases on Pleading	1	197
Prof. Beale	Criminal Law and Procedure. Beale's Cases on Criminal Law	2	187
Second Year.			
Prof. Wambaugh	Agency. Wambaugh's Cases on Agency	2	120
Prof. Ames	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes . .	2	124
Prof. Wambaugh	Contracts and Quasi-Contracts. Keener's Cases on Quasi-Contracts	2	5
Prof. Thayer	Evidence. Thayer's Cases on Evidence	2	175
Prof. Wambaugh	Insurance. No text-book	2	8
Prof. Langdell	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading . .	2	10
Mr. Williams	Property. Gray's Cases on Property, vol. 3, 4	2	165
Prof. Thayer	Sales of Personal Property. Williston's Cases on Sales	2	62
Prof. Ames	Trusts. Ames's Cases on Trusts (new edition)	2	167
Prof. Beale	Carriers. McClain's Cases on Carriers	1	69
Prof. Beale	Damages. Beale's Cases on Damages	1	60
Prof. Smith	Law of Persons. Interpretation of Statutes. No text-book	1	15

Third Year.

Prof. Thayer	Constitutional Law. Thayer's Cases on Constitutional Law	2	66
Prof. Smith	Corporations. Cumming's Cases on Corporations	2	109
Prof. Langdell	Jurisdiction and Procedure in Equity. No text-book	2	25
Mr. Baker	Partnership. Ames's Cases on Partnership	2	69
Prof. Gray	Property. Gray's Cases on Property, vol. 5, 6	2	36
Prof. Ames	*Suretyship. Ames's Cases on Suretyship	2	
Prof. Wambaugh	Agency. Wambaugh's Cases on Agency	2	40
Prof. Ames	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes . .	2	24
Prof. Wambaugh	Contracts and Quasi-Contracts. Keener's Cases on Quasi-Contracts	2	
Prof. Thayer	Evidence. Thayer's Cases on Evidence	2	2
Prof. Wambaugh	Insurance. No text-book	2	23
Prof. Langdell	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading . .	2	
Mr. Williams	Property II. Gray's Cases on Property, vol. 3, 4	2	5
Prof. Thayer	Sales of Personal Property. Williston's Cases on Sales	2	31
Prof. Ames	Trusts. Ames's Cases on Trusts (new edition)	2	4
Prof. Beale	Carriers. McClain's Cases on Carriers	1	42
Prof. Gray	Comparative Jurisprudence. No text-book	1	
Prof. Beale	Conflict of Laws. No text-book	1	22
Prof. Beale	Damages. Beale's Cases on Damages	1	31
Prof. Smith	Law of Persons. Interpretation of Statutes. No text-book	1	19

* A course of fifteen lectures.

The following table shows the character of the total new entries of all kinds to December 1st for the last two years : —

Year.	Entries of all kinds.	Graduates of Colleges.	Harvard Graduates.	Graduates of other Colleges.	Harvard College Seniors.	Non-Graduates.
1896-97 . . .	208	169	11	95	17	23
1897-98 . . .	254	224	94	130	18	17

The continued growth of the School, notwithstanding its change into a graduate department of the University, has upset all our calculations. Instead of the anticipated loss of at least 50 and possibly 100, in the first years after the change, there has been a gain of 80 in the total registration. The unprecedented number of entries this year makes it probable that the School will not have fewer than 500 students for some years to come; for it seems impracticable effectually to check the resort to the School by further restrictive measures.

This wealth of numbers is not without its embarrassments. In all the first year subjects, and in the large electives of the second year, the classes should be divided into two sections. This division necessitates an increase in the teaching staff and an additional lecture room. The spacious reading room in Austin Hall is likewise much too small for the students now in the School. It is cause for regret that a large portion of the surplus earnings of the School should be used for no better purpose than an extensive enlargement of the building; but it is a slight consolation that the School would be following a precedent in its own history, — the enlargement of Dane Hall in the time of Judge Story.

Within recent years three alumni have repaid the amount of money received by them as holders of scholarships when students at the School. At the suggestion of one of these, who insisted upon adding to his contribution compound interest for ten years, the money coming from former holders of scholarships has been set apart as a special loan fund for the benefit of meritorious students in years to come. It is believed that many other recipients of scholarships will be glad to add to this fund, and thereby give to their successors the advantage that they themselves enjoyed.

The following table exhibits the representation in the School, since 1870-71, of the twelve colleges which have been its principal contributors.

Year.	Harvard.	Amherst.	Bowdoin.	Brown.	California.	Dartmouth.	Michigan.	Oberlin.	Princeton.	Trinity.	Williams.	Yale.
1870-71	27	4	2	2	1	6	..	..	2	..	3	5
1871-72	34	..	..	7	..	..	..	..	3	1	2	3
1872-73	41	..	1	7	..	..	1	..	1	..	..	3
1873-74	49	1	..	4	1	3	1	..	..	..	4	4
1874-75	63	..	..	..	1	1	..	..	..	..	1	3
1875-76	59	1	3	2	..	1	..	..	2	..	..	3
1876-77	72	3	1	3	..	..	1	..	3	..	1	4
1877-78	70	3	1	2	..	1	1	1	2	..	4	4
1878-79	68	4	3	2	..	3	1	2	2	..	..	4
1879-80	71	4	3	1	..	..	..	3	..	..	..	1
1880-81	82	4	1	3	..	1	..	1	..	1	..	4
1881-82	65	..	1	2	..	3	1	..	..	2	2	4
1882-83	59	1	..	2	..	1	1	1	..	1	..	3
1883-84	74	1	2	..	..	2	3	..	..	3	..	2
1884-85	77	2	1	2	..	..	4	1	..	1	..	3
1885-86	82	2	..	1	..	..	1	4	1	..	1	7
1886-87	86	5	1	3	..	2	2	6	1	1	1	4
1887-88	102	5	2	5	1	..	..	5	1	1	1	3
1888-89	102	9	1	5	1	1	1	2	1	..	..	4
1889-90	121	5	1	6	1	2	..	2	1	2	1	3
1890-91	137	5	..	7	..	3	2	..	3	4	5	7
1891-92	140	5	3	13	2	2	2	2	4	2	3	22
1892-93	132	9	3	14	4	5	4	..	4	2	7	22
1893-94	129	14	6	13	4	5	6	1	5	2	6	19
1894-95	139	16	2	11	7	3	2	2	6	3	7	20
1895-96	171	14	3	19	7	7	3	2	7	4	11	24
1896-97	186	13	6	17	7	11	3	2	11	3	11	32
1897-98	227	15	7	21	5	10	4	2	21	5	9	42

JAMES BARR AMES, *Dean.*

THE MEDICAL SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — As Dean of the Medical Faculty, I have the honor to submit the following report upon the Medical School for the academic year 1896-97:—

The only important change which has been made in the course of instruction is the addition of Clinical Microscopy to the list of electives in the fourth year. The report of a case of fracture and a clinical account of a surgical case have been added to the requirements for a degree.

The students were invited to the Massachusetts General Hospital on Saturday, October 17, to participate in exercises commemorative of the semi-centennial of anaesthesia.

In the early spring, through the liberality of the Harvard Medical Alumni Association, four lectures on Climatology were delivered to the students by Mr. Robert DeCourcy Ward, A.M., Instructor of Climatology in Harvard College. Prof. William T. Porter gave four lectures on The Innervation of the Heart, and Dr. S. A. Hopkins, one lecture on Variations in the Morphology of the Bacteria.

The annual reception given by the Faculty to the Instructors of the School, the Committee to Visit the School, the Officers of the Alumni Association, the Superintendents of the Hospitals at which clinical instruction is given, and the medical members of the governing bodies of the University was held on Wednesday evening, October 27, and was fully attended.

Building. — On account of the increasing size of the classes, it has been found necessary to increase the number of divisions for laboratory work to such an extent that a large part of the microscopic work must be done in the various laboratories in the late afternoon hours by artificial light. The Building Committee has, therefore, provided one hundred and fifty portable electric lamps suitably shaded for microscopic work. These lamps were made by the employees of the School.

A new projection lantern has been introduced into Lecture Room A, which projects the pictures on the screen so that they may be seen clearly without darkening the room, thereby saving the lecturer, who needs to use the lantern to illustrate his lectures, a great deal of time.

A new electric elevator has been put in, in place of the old water-power elevator. By this change a larger car is obtained, and the expense of running the elevator has been much reduced. The elevator doors have been provided with more perfect automatic safety locks and running gear, so that they can only be opened when the elevator is at the door, and the door closes automatically as soon as the elevator moves.

A portion of the Pathological Laboratory, in the Sears Building, has been changed so as to provide a pathological library and reading room for the use of the teachers and students.

A large number of bicycle stalls have been placed in the horse-sheds in the School yard.

Physiology. — Mr. W. B. Cannon and Mr. A. Moser have studied under the direction of Professor Bowditch the phenomena of deglutition, the swallowed mass being mixed with bismuth subnitrate and observed in the living animal by the aid of the X-ray. A preliminary report of their results was given to the American Physiological Society in May, 1896. Mr. Cannon has also studied the movements of the stomach during digestion.

Professor Bowditch contributed to the meeting of the British Association for the Advancement of Science, held at Toronto, a paper on "The Rhythmic Contraction of Smooth Muscles."

Asst. Professor W. T. Porter and the students under his direction have published : —

On the relation of the volume of the coronary circulation to the frequency and force of the ventricular contraction in the isolated heart of the cat, by J. B. MAGRATH and H. KENNEDY. *The Journal of Experimental Medicine*, 1897, Vol. II, pp. 13-34.

On the cause of the heart beat, by W. T. PORTER. *The Journal of Experimental Medicine*, 1897, Vol. II, No. 4.

The following have been presented to the American Physiological Society, The British Association for the Advancement of Science, and the British Medical Society, and are now in press : —

The recovery of the heart from fibrillary contractions, by W. T. PORTER.

The relation between the beat of the ventricle and the flow of blood through the coronary arteries, by W. T. PORTER.

The nutrition of the heart through the vessels of Thebesius and the coronary veins, by F. H. PRATT.

The effect of distension of the ventricles on the flow of blood through the cardiac walls, by I. H. HYDE.

Studies of the vaso-motor nerves, by Mr. I. R. Bancroft; of the effect of alcohol on the heart, by Mr. L. V. Friedman and Mr. F. J.

Geib; and infarctions of the heart, by Mr. W. B. Odiorne and Mr. R. B. Osgood have not been completed.

The work in experimental physiology required of first year students has been increased sixfold, and now includes more than fifty experiments on muscle and nerve, the circulation and the central nervous system.

Experimental Pharmacology. — The results of an experimental investigation of cholagogues, made by Dr. Pfaff and Mr. A. W. Balch upon a patient of Dr. H. H. A. Beach, in the Massachusetts General Hospital, were published in *The Journal of Experimental Medicine* under the title: "An Experimental Investigation of Some of the Conditions Influencing the Secretion and Composition of Human Bile."

The research on the poisonous principle of *rhus toxicodendron* and *rhus venenata* has been so far completed that the results obtained were published by Dr. Pfaff in *The Journal of Experimental Medicine* under the title: "On the Active Principle of *Rhus Toxicodendron* and *Rhus Venenata*."

This research has been further pursued by Mr. A. W. Balch, who extracted during the last summer the poisonous oil from over four hundred pounds of poison ivy and poison sumach. Enough oil has been obtained for further chemical analysis.

Mr. A. W. Balch also continued the pharmacological examination of cornsmut.

Dr. Pfaff has had the opportunity, through the courtesy of Dr. H. W. Cushing, of the Boston City Hospital, to make some observations on the flow of pancreatic liquid in a case of human pancreatic fistula. The results of the analysis were communicated at the meeting in May, 1897, of the American Physiological Society, in Washington.

The active principle of *Zygadenus venenosus* has been isolated by Dr. Pfaff, and this research, with some others, is being further pursued in the laboratory.

Embryological Department. — The collection of preparations for class instruction has been extended and greatly improved, and now numbers over eight thousand microscopical slides. For the first time in the history of the laboratory there will be, owing to the purchases of the year, a supply of microscopes sufficient to meet the reasonable demands from students.

The principal achievement of the year has been the foundation and growth of a systematic embryological collection which has been planned with great care. This collection consists of serial sections

of embryos varying from 100 to 2000, of each embryo. It includes besides man, about fifteen typical species of vertebrates, and is intended when completed to comprise a full set of stages of each species, each stage to be represented by three series, one in each of three principal planes. The collection will serve for demonstrations, but the principal purpose is to facilitate research in human and comparative embryology. At the close of the year 125 embryos had been prepared, and they will be used for several distinct investigations during the coming year. The growth of the collection has been due to the gift of \$200 from Mr. W. G. Chase, for that special purpose.

Dr. Minot has prepared a report on the Histogenesis of the Nervous System, now in press, and to appear in *Merkel and Bonnett's Ergebnisse*, also an essay "On the origin of Vertebrates." He has published:—

Our unsymmetrical Organization. *Harvard Graduates' Magazine*, V, 1897.

On Two Forms of Automatic Microtomes. *Science*, V, 857.

Dr. A. Schaper has prepared an American edition of "Stöhr's Lehrbuch der Histologie" which is published by P. Blakiston, Son, & Co., of Philadelphia, under the title: "Text-book of Histology," by Philipp Stöhr. — Sixth Edition. Trans. by Emma Billstein, M.D. Edited with additions by Dr. Alfred Schaper. (A new edition is already called for.)

Dr. Schaper has also continued his histological and embryological studies on the cerebellum, and found during his visit at the Marine Biological Laboratory, in Woods Holl, an opportunity to extend his investigation upon the cerebellum of the Selachii (*Mustelus vulgaris*). The results obtained by Golgi-preparations from the latter material are ready to be published in the *Anatomischen Anzeiger*.

Dr. Schaper has published further the following papers during the last academic year:—

Die frühesten Differenzirungsvorgänge im Centralnervensystem. — Kritische Studie und Versuch einer Geschichte der Entwicklung nervöser Substanz. (*Arch. für Entwicklungsmechanik*, V, 1897.)

Zur Methodik der Plattenmodellirung. (*Zeitschr. für wiss. Mikroskopie*, XIII, 1897.)

Zur Sublimatfixation. (*Anatom. Anz.*, XIII, 1897.)

Experimentelle Studien an Amphibienlarven. — Erste Mittheilung. (*Archiv für Entwicklungsmechanik*, VI, 1897.)

Warren Museum. — Early in the year the painting of the cases and rearrangement of the specimens was completed, the latter being

relabelled also. A form of label holder was adapted to the style of jars in use, which can be easily applied, holds the card firmly and upright above the cover, and can be taken off, without disturbance, to change the preservative or remove the specimen. All of the old pen-written labels have been replaced by typewritten ones, and a uniform method of heading has been adopted which will greatly facilitate the indexing that will be at once begun.

In March a new method for the preservation of specimens with their natural colors was published by Kaiserling, of Berlin. Experiments were at once made with it, and the results have thus far exceeded all expectations. The preparations have stood for six months, and the contrasts of colors are as sharp in many of them as when first put up. It probably has its limitations, one of which is that light has to be excluded from the cases, and time will probably show to what particular class of objects it is best adapted. It is, however, a great advance over any previous method, and its advantage for teaching purposes is incalculable. About one hundred and fifty such preparations have already been added to the collection.

The students have availed themselves of the opportunity to inspect the Museum in increasing numbers during the past year.

Bacteriology.—During the year the examination of suspected cases of sore throat for the bacilli of diphtheria has been carried on, and about seven thousand such examinations have been made. The preparation of the antitoxine of diphtheria has been continued, supplying nearly two thousand cases.

The beginning has been made of a series of water-color drawings of cultures of many bacteria upon different media for purposes of class illustration. When brought near to completion, the collection will be unique.

Dr. A. K. Stone has been carrying on a study of the virulence of bacilli of diphtheria occasionally found in the throats of persons some weeks recovered from an attack of the disease. The results are almost ready for publication.

Dr. J. N. Coolidge has made a study of well-water suspected of contamination with the bacillus of typhoid fever, and has apparently demonstrated the presence of this bacillus.

Dr. C. G. Page has made a study of the best methods of obtaining a bouillon adapted for the production of diphtheria toxine, and is now engaged upon a study of the etiology of scarlet fever.

Dr. S. A. Hopkins has pursued his investigations of the bacteria of the mouth, with some remarkable results that are shortly to be published.

Dr. S. G. Grubbs (U. S. Marine Hospital Service) is undertaking a research upon the morphology of the hog cholera bacillus.

The laboratory is cramped as never before for room in which to give proper instruction to the regular students of the School.

Hygiene. — Dr. Harrington has been engaged in an investigation of the possibilities and limitations of formaldehyde as a practical disinfectant, with special regard to its power and penetration and the amount necessary in given air spaces for the destruction of various (exposed) micro-organisms. The results of the work are now in the hands of the printer.

Dr. Harrington has also undertaken a series of experiments on the sterilization of surgical appliances. This work is still in progress.

The research referred to in the last report, on the action of various food preservatives, has been further continued and is still in progress.

Dr. Harrington has also made a number of analyses of patent foods which have been placed on the market within the past few years. The results obtained formed the basis of a paper on Food Nostrums, read at the last annual meeting of the Massachusetts Medical Society, and printed in the transactions.

Pathology. — In addition to the courses of instruction as given in the last report, a full course in Surgical Pathology has been given by Dr. E. H. Nichols.

A part of the main room in the pathological laboratory has been converted into a library. The gifts of Dr. H. F. Sears have been used for the purchase of current journals on pathology and to complete the sets. The library now has complete sets of the most important journals and archives. Dr. R. H. Fitz has also contributed valuable standard works and monographs.

During the past year the following articles from the department have appeared or have been accepted for publication: —

Dr. W. T. COUNCILMAN. — An anatomical and bacteriological study of acute nephritis.

Dr. W. T. COUNCILMAN, Dr. B. F. MALLORY and Dr. J. H. WRIGHT. — Epidemic cerebro spinal meningitis.

Dr. F. B. MALLORY and Dr. J. H. WRIGHT. — Pathological Technique, published by Saunders & Co., Philadelphia.

Dr. F. B. MALLORY. — On certain improvements in histological technique.

Dr. J. J. CURRY. — Bacteriological investigation of 312 cases of surgical infection.

Comparative Pathology. — During the second half year Professor Theobald Smith gave a voluntary course of lectures, twice a week, on the Comparative etiology of infectious diseases with special reference to problems pertaining to the public health.

During the year the following course of free evening lectures were given to medical graduates:—

Oct. 8. — Dr. ARTHUR T. CABOT. — *The Treatment of Strictures of the Urethra.*

Oct. 15, 22. — Professor D. W. CHEEVER, LL.D. — *Medicine as a Trade. Medicine as a Profession.*

Oct. 29. — Professor F. C. SHATTUCK. — *The Prognostic and Diagnostic Value of Blood Examination as Practised To-day.*

Nov. 5. — Dr. G. W. GAY. — *When to Call a Surgeon in Appendicitis.*

Nov. 12. — Dr. CHARLES HARRINGTON. — *Food Preservatives Considered from a Hygienic Standpoint.*

Nov. 19. — Asst. Professor FRANK B. MALLORY. — *Facts and Theories in Regard to Staining.*

Dec. 8. — Dr. EUGENE A. CROCKETT. — *On Hearing-tests and the Importance of Testing the Hearing of School Children.*

Dec. 10, 17. — Professor CHARLES S. MINOT. — *The New Theories of Protoplasm.*

Jan. 7, 14. — Asst. Professor FRANK H. DAVENPORT. — *Displacements of the Uterus.*

Jan. 21. — Dr. ABNER POST. — *Late Hereditary Syphilis.*

Jan. 28, Feb. 4. — Professor J. J. PUTNAM. — *The Newer Views of the Nature, Causes, and Treatment of Epilepsy.*

Feb. 11. — Professor T. DWIGHT. — *The Reconstruction Method in Human Anatomy. Illustrated by the Reconstruction of Several Viscera.*

Feb. 18. — Asst. Professor WM. T. PORTER. — *The Physiology of the Sympathetic Nervous System.*

Feb. 25, March 4. — Professor WM. T. COUNCILMAN. — *Arterio-Sclerosis.*

March 18. — Asst. Professor E. H. BRADFORD. — *Disease of the Hip Joint.*

March 25. — Dr. F. E. CHENEY. — *Injuries of the Eye.*

Scholarships. — During the year four new scholarships have been established. Three of these are known as the Eveleth Scholarships, and were founded from the residuary bequest made by

Joseph Eveleth, of Boston; the fourth, the Edward Wigglesworth Scholarship, was founded by the family of the late Edward Wigglesworth, M.D. These four scholarships have an annual income of two hundred dollars.

The Scholarships and Fellowships were awarded as follows:—

Barringer Scholarship, No. 1,	G. B. Magrath, A.B.	3d Class.
Isaac Sweetser Scholarship,	D. C. Green, Jr., A.B.,	2d "
Claudius M. Jones "	Maynard Ladd, A.B.,	3d "
Barringer " No. 2,	J. T. Callahan,	2d "
Alfred Hosmer Linder Scholarship,	W. W. Harvey,	3d "
Faculty Scholarship,	R. H. Birge, A.B.	3d "
" "	C. D. Wilkins,	2d "
" "	J. S. Moore, A.B.,	3d "
" "	L. R. G. Crandon, A.B.,	3d "
Eveleth "	F. H. Haskins, A.B.,	2d "
" "	H. H. Cleveland,	2d "
" "	E. T. Easton,	2d "
Orlando W. Doe Scholarship,	C. B. Wormelle,	3d "
Charles Pratt Strong "	P. P. Moore,	3d "
Cheever "	W. B. Cannon, A.B.,	1st "
Hayden " (one half)	E. J. Davis, A.B.,	2d "
Hayden " (one half)	J. W. Thomas, A.B.,	2d "
Foster Gratuity,	H. T. Swain,	4th "
" "	R. E. Stevens,	4th "

The George Cheyne Shattuck Fellowship was awarded Dr. Alfred Schaper for the study of the morphological and histological development of the cerebellum of the higher vertebrates.

The John Ware Fellowship was awarded Mr. A. W. Balch for the study of the active principles and activity of the preparations of corn ergot and corn silk and other work of a similar character.

The Charles Eliot Ware Fellowship was awarded Dr. E. A. Codman for the study, by means of the Röntgen rays, of the motions of the joints and the line of junction of the epiphysis with the shaft in children.

Two essays were submitted for the William H. Thorndike Prize, but the Committee to whom they were referred, reported that nothing was deemed worthy of a prize.

The statistics of the School will be found in the following tables:—

COURSES OF INSTRUCTION, 1896-97.

FIRST YEAR.

Anatomy. — Professor T. DWIGHT, Asst. Professor DEXTER, Demonstrator BROOKS, Assistant TENNEY, Assistant LUND, Assistant LOTHEOP, Assistant BLAKE. 160 students examined.

Physiology. — Professor H. P. BOWDITCH, Asst. Professor W. T. PORTER, Instructor LOCKER. 163 students examined.

Histology and Embryology. — Professor MINOT, Demonstrator SCHAPER, Instructor QUINCY, Assistant DeLUN, Assistant AMES.

147 students examined.

Physiological Chemistry. — Associate Professor HILLS, Assistant BACOW, Assistant OGDEN, Assistant EWALD.

160 students examined.

Hygiene. — Instructor HARRINGTON.

Bacteriology. — Professor EMMET, Assistant STONE, Assistant COOLIDGE, Assistant DARLING.

142 students examined.

SECOND YEAR.

Advanced Anatomy. — Professor T. DWIGHT, Asst. Professor DEXTER.

141 students examined.

Pathology and Pathological Anatomy. — Professor COUNCILMAN, Asst. Professor MALLORY, Instructor TAYLOR, Instructor WRIGHT, Assistant NICHOLS, Assistant CURRY.

140 students examined.

Clinical Chemistry. — Professor WOOD, Assistant OGDEN, Assistant HEWES.

140 students examined.

Therapeutics. — Instructor HARRINGTON, Demonstrator PFAFF, Assistant JORDAN.

172 students examined.

Theory and Practice. — Professor FITZ, Instructor CUTLER.

Clinical Medicine. — Professor SHATTUCK, Associate Professor MASON, Instructor GANNETT, Instructor WITHINGTON, Assistant V. Y. BOWDITCH, Assistant KNIGHT, Assistant SEARS, Instructor VICKERY, Assistant JACKSON, Assistant MORSE.

Surgery and Clinical Surgery. — Professor WARREN, Professor C. B. PORTER, Instructor CABOT, Instructor MIXTER, Assistant WATSON, Instructor HOMANS, Instructor GAY, Asst. Professor BURRELL, Assistant MONKS, Assistant SCUDDER, Assistant LOVETT, Assistant THORNDIKE, Assistant CONANT, Instructor MUNRO, Assistant MUMFORD, Assistant DWIGHT.

THIRD YEAR.

Theory and Practice of Medicine. — Professor FITZ, Instructor CUTLER.

142 students examined.

Surgery. — Professor WARREN, Assistant CONANT, Assistant WATSON, Assistant SCUDDER, Instructor MUNRO, Instructor HOMANS, Assistant LOVETT.

141 students examined.

Obstetrics. — Professor W. L. RICHARDSON, Asst. Professor C. M. GREEN, Instructor REYNOLDS, Assistant TOWNSEND, Assistant HAVEN.

141 students examined.

Clinical Obstetrics. — Professor W. L. RICHARDSON, Asst. Professor C. M. GREEN, Instructor REYNOLDS, Assistant TOWNSEND, Assistant HAVEN.

141 students examined.

Dermatology. — Professor WHITE.

147 students examined.

Diseases of the Nervous System. — Professor PUTNAM, Instructor WALTON, Instructor KNAPP, Instructor PRINCE.

146 students examined.

Diseases of Children. — Professor ROTCH, Instructor BUCKINGHAM, Assistant WENTWORTH, Assistant CRAIGH. 151 students examined.

Mental Diseases. — Lecturer FISHER, Instructor COWLES. 136 students examined.

Gynecology. — Asst. Professor DAVENPORT, Instructor HAVEN, Assistant SWIFT, Assistant REYNOLDS. 144 students examined.

FOURTH YEAR.

Clinical Surgery. — Professor C. B. PORTER, Asst. Professor BURRELL, Asst. Professor M. H. RICHARDSON, Assistant MONKS, Assistant LOVETT, Assistant THORNDIKE, Assistant CONANT, Assistant MUNRO, Assistant SCUDDER, Assistant E. W. DWIGHT. 93 students examined.

Clinical Medicine. — Professor SHATTUCK, Associate Professor MASON, Instructor GANNETT, Instructor WITHINGTON, Assistant V. Y. BOWDITCH, Instructor VICKERY, Assistant KNIGHT, Assistant SEARS, Assistant JACKSON, Assistant MORSE. 96 students examined.

Ophthalmology. — Professor WADSWORTH, Assistant STANDISH, Assistant CHENEY. 98 students examined.

Otology. — Professor BLAKE, Professor J. O. GREEN, Assistant HAMMOND, Assistant CROCKETT. 93 students examined.

Laryngology. — Instructor DEBLOIS, Instructor FARLOW, Instructor COOLIDGE. 96 students examined.

Legal Medicine. — Professor DRAPER. 96 students examined.

Syphilis. — Instructor POST. 94 students examined.

Orthopedics. — Asst. Professor BRADFORD. 90 students examined.

Electives.

Ophthalmology. — Professor WADSWORTH, Assistant STANDISH, Instructor CHENEY. 5 students examined.

Otology. — Professor BLAKE, Professor J. O. GREEN, Assistant HAMMOND, Assistant CROCKETT. 1 student examined.

Dermatology. — Professor WHITE, Instructor BOWEN. 6 students examined.

Diseases of the Nervous System. — Professor PUTNAM, Instructor WALTON, Instructor KNAPP, Instructor PRINCE. 6 students examined.

Gynecology. — Asst. Professor GREEN. 33 students examined.

Operative Obstetrics. — Asst. Professor C. M. GREEN, Assistant REYNOLDS, Assistant HAVEN, Assistant TOWNSEND. 78 students examined.

Operative Surgery. — Professor C. B. PORTER, Asst. Professor BURRELL, Instructor MIXTER, Assistant MONKS, Assistant LOVETT, Assistant THORNDIKE, Assistant CONANT, Assistant SCUDDER. 49 students examined.

Hygiene. — Instructor HARRINGTON. 1 student examined.

Bacteriology. — Professor ERNST, Assistant STONE, Assistant COOLIDGE, Assistant DARLING. 46 students examined.

Orthopedics. — Asst. Professor BRADFORD. 4 students examined.

Clinical Microscopy. — Curator WHITNEY. 4 students examined.

Chemistry. — Professor WOOD, Assistant HEWES. 6 students examined.

TABLE I.—GENERAL STATISTICS OF THE SCHOOL.

EXAMINATIONS FOR ADMISSION.

		Physica.	Latia.	Eng- lish.	Elec- tive 1.	Elec- tive 2.	Gen. Chem.	Qual. Analysis.	
1896.	{ June	{ Offered	81	70	52	48	52	85	27
		{ Conditioned	11	22	5	9	17	11	14
	{ Sept.	{ Offered	41	51	22	26	32	59	47
		{ Conditioned	7	11	0	8	12	14	6

New matriculants . . . 155 { Graduates in Medicine 6
 Undergraduates 149

Of these 50.32 % presented a degree in Letters, Science, or Medicine.

The whole number of students in attendance :—

In courses for graduates	75
Fourth Class	72
Third Class	128
Second Class	153
First Class	172
Total	600

	3 yrs. Course.	4 yrs. Course.
Applicants for Degree	2	101
Rejected	0	30
Graduated	2	71

Of the 71 students who received the degree of Doctor of Medicine in the four years' course, 29 received the degree *cum laude*.

	SUMMER COURSES.					GRADUATE COURSES.				
	1893.	1894.	1895.	1896.	1897.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
Courses taken	111	101	110	116	130	108	82	95	105	175
Students	81	93	89	100	110	52	53	50	56	76
Receipts	\$3650	\$2355	\$2725	\$2972	\$3129	\$2083	\$2010	\$2813.33	\$2520	\$3810

TABLE II.—FINAL EXAMINATIONS.

First Class.										Second Class.											
Histology.		Bacteriology.		Physiology.		Chemistry.		Anatomy.		Physiology.		Clinical Chemistry.		Medicine.		Path. Anatomy.		Adv. Anatomy.		Therapeutics.	
\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢
1893 { Passed	76	111	88	76	91	133	4	116	114	78											
	15	17	32	55	35	23	0	24	31	47											
	91	128	120	131	126	156	4	140	145	125											
1894 { Passed	80	96	74	80	112	94		89	89	78											
	32	15	25	27	35	19		18	14	21											
	112	111	99	107	147	113		107	103	109											
1895 { Passed	139	127	119	116	114	82		87	86	53											
	30	32	40	48	38	10		33	9	41											
	169	159	159	164	152	92		100	95	94											
1896 { Passed	142	145	136	132	122	123		121	110	112											
	15	9	27	40	39	22		23	38	68											
	157	154	163	172	161	145		144	148	180											
1897 { Passed	136	111	136	113	126	123		104	110	108											
	11	31	24	47	36	17		36	31	64											
	147	142	160	160	162	140		140	141	172											

TABLE II. — FINAL EXAMINATIONS, CONTINUED.

	THIRD CLASS.										FOURTH CLASS.									
	Theory and Practice.	Surgery.	Obstetrics.	Diseases of Children.	Dermatology.	Gynaecology.	Nervous Diseases.	Mental Diseases.			Clinical Medicine.	Clinical Surgery.	Ophthalmology.	Otology.	Laryngology.	Legal Medicine.	Gynaecology.	Orthopedics.		
1893																				
	Passed	95	1	30	7	56					93	90			1	0				
	Rejected	1	2	0	0	1					12	6			0	0				
1894	Total	96	103	30	7	57					105	96			1	0				
	Passed	111	108	30	1	71	8				103	104			4	0	0			
	Rejected	2	11	0	0	0	0				3	10			0	0	0			
1895	Total	113	119	30	1	71	8				111	114			4	0	0			
	Passed	83	98	88	48	57	71	81			15	11			7	12	12			
	Rejected	4	31	1	12	7	10	0			7	6			1	1	1			
1896	Total	89	119	89	61	64	81	81			22	16			8	13	13			
	Passed	95	83	62	82	80	76	87	3		97	100			94	0	0	0		
	Rejected	6	12	28	31	9	17	2			4	2			0	0	0	0		
1897	Total	101	91	90	103	89	93	89			101	102			94	0	0	0		
	Passed	128	123	66	125	136	131	136	0		80	82			91	0	0	0	1	
	Rejected	14	18	85	22	8	17	0			7	11			2	3	3	1		
	Total	142	141	151	147	144	148	136			96	93			93	3	3	1	1	

TABLE II.—FINAL EXAMINATIONS, CONTINUED.

FOURTH CLASS.—ELECTIVES.																									
	Optical.	Zoology.		Gynaecology.		Dermatology.		Diseases of Nervous System.		Operative Obstetrics.		Operative Surgery.		Bacteriology.		Hygiene.		Orthopedics.		Clinical Microscopy.		Chemistry.			
		Passed	Rejected	Passed	Rejected	Passed	Rejected	Passed	Rejected	Passed	Rejected	Passed	Rejected	Passed	Rejected	Passed	Rejected	Passed	Rejected	Passed	Rejected	Passed	Rejected		
1893	Passed	5		16	0	4	0	6	0	6	0	4	0	10	0		0								
	Rejected	1	16	0	0	0	0	0	0	0	0	0	0	0	0										
	Total	6	16	16	0	4	0	6	0	6	0	4	0	10	0		0								
1894	Passed	5		19	3	6	0	5	0	15	1	10	1	20	1	6	0								
	Rejected	0	0	2	14	0	0	0	0	1	6	1	10	1	2	0	0	0							
	Total	5	0	21	17	6	0	5	0	16	7	11	11	21	3	6	0								
1895	Passed	1		16	0	9	2	2	1	12	1	7	2	23	3	3	0								
	Rejected	0	0	0	0	2	16	1	23	1	7	2	22	3	11	0	0								
	Total	1	0	16	0	11	18	3	24	2	14	9	24	6	14	3	0								
1896	Passed			64	7	17	10	7	1	56	3	20	0	20	1	1	0								
	Rejected		0	5	0	2	10	1	12	5	0	0	0	1	5	0	0								
	Total		2	69	7	19	20	8	13	61	3	20	0	21	6	1	0								
1897	Passed	5		28	15	6	0	6	0	55	23	46	3	45	1	1	0	4	0	4	0	0	0		
	Rejected	0	0	5	0	0	0	0	0	3	31	2	6	1	2	0	0	0	0	4	0	0	0		
	Total	5	0	33	15	6	0	6	0	58	54	48	8	46	3	1	0	4	0	8	0	0	0		

At the close of the School year Dr. C. P. Worcester resigned his position as Secretary of the Faculty, and Dr. Charles M. Green was nominated as his successor. For seven years Dr. Worcester had held the office of Secretary, and his loss will be greatly felt both by the Faculty and the students.

WILLIAM L. RICHARDSON, *Dean*.

THE DENTAL SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I have the honor to submit the following report upon the Dental School for the year 1896-97:—

The total number of students in the School was 132, divided as follows:—

Graduate Students	2	Second Year Students	41
Third Year Students	89	First Year Students	50

The total number was an increase of 29 over any previous year. This growth is the more encouraging when we consider the additional requirements of our entrance examination and the higher fees. Latin or French has been made obligatory, in addition to English, Physics, and an Elective in German, the Elements of Algebra or of Plane Geometry, Botany, or Chemistry. The examination for entrance has been made stricter; and the class of students is better in consequence. At Commencement in June last 32 men received the degree of Doctor of Dental Medicine.

The Course of Instruction has been as follows:—

FIRST YEAR.

Descriptive Anatomy.—Professor DWIGHT and Assistant Professor DEXTER. Four hours a week till Christmas. Three times a week in January. Twice a week until April. Recitations, once a week.—Dr. TENNET.

Practical Anatomy with exercises in Dissection from October till May. Demonstrations.—Drs. BROOKS, TENNET, LUND, BLAKE, LOTHROP, and WARREN.

Physiology. Sytematic and Experimental Physiology.—Professor BOWDITCH and Assistant Professor W. T. PORTER. Four times a week during first half-year. Six times a week during second half-year.

Laboratory exercises in Experimental Physiology.—Assistant Professor W. T. PORTER and Mr. LOCKE.

Chemistry. General Chemistry, twice a week during first half-year. Twice a week during second half-year.—Professor HILLS and Mr. BACON.

Practical exercises in the Laboratory. Twice a week during first half-year. Twice a week during second half-year.

Histology and Embryology. Lectures twice a week during the first half-year.—Professor MINOT.

Laboratory exercises twice a week during first and second half-years.—Professor MINOT and Drs. QUINCY, SCHAFER, AMES, and DELOR.

Bacteriology. Eighteen lectures in second half-year. — Professor EMMET. Practical Laboratory work under the direction of Professor EMMET.

Operative Dentistry. Preliminary. Six hours a week first half-year. — Drs. UPHAM and TAYLOR.

SECOND YEAR.

Operative Dentistry. Lectures twice a week. — Professor FILLBROWN and Dr. POTTER. Clinical lectures and lectures on Jurisprudence and the Conduct of Practice, once a week for fifteen weeks. — Dr. CLAPP.

Practical work in Operative Infirmary fifteen hours a week throughout the year under the direction of Dr. DICKINSON, Assistant Demonstrator in Charge, assisted by Drs. HARDY and FARRINGTON.

Mechanical Dentistry and Orthodontia. Lectures once a week. — Professor SMITH. Practical work in Laboratory. Eighteen hours a week under the direction of Dr. McMEERIN assisted by Dr. CHASE.

Surgery. Lectures once a week, for one month. — Professor WARREN.

Oral Surgery. Lectures by Professor FILLBROWN.

Operative Surgery at the Massachusetts General Hospital and Boston City Hospital one day each week.

Dental Pathology. Once a week. Professor BRACKETT.

Oral Anatomy and Physiology. Lectures and Demonstrations. Once a week. — Professor STANTON.

Materia Medica and Therapeutics. Once a week. — Professor BRIGGS.

Neurology. Once a week for four weeks. — Dr. WALTON.

Crown and Bridge Work and Metallurgy. Lectures and demonstrations. Once a week. — Dr. COOKE.

THIRD YEAR.

Operative Dentistry. Twice a week. — Professor FILLBROWN and Dr. POTTER. Clinical lectures and lectures on Jurisprudence and the Conduct of Practice once a week for fifteen weeks. — Dr. CLAPP.

Clinical Instruction once a week for six weeks. — Dr. WERNER.

Practical work in Infirmary fifteen hours a week under the direction of Dr. PAUL, Demonstrator in Charge, assisted by Drs. BLAISDELL, TAFT, EDDY, BRADLEY and BOARDMAN.

Clinical demonstration once a week for six weeks. — Dr. WERNER.

Mechanical Dentistry and Orthodontia. Lectures and Orthodontia clinics once a week. — Professor SMITH.

Clinical Instruction once a week for six weeks. — Dr. STODDARD.

Laboratory exercises eighteen hours a week under the direction of Dr. MORLARTY, Demonstrator in Charge, assisted by Drs. HALEY, ELDEED, BURNHAM, HAYDEN, BIXBY, and OLDHAM.

Crown and Bridge Work and Metallurgy. Lectures and demonstrations once a week. — Dr. COOKE.

Surgical Pathology. Lectures once a week for ten weeks. — Dr. MONKS.

The work of the Operative and Mechanical Department is shown in the following statistics:—

OPERATIVE DEPARTMENT.

Surgical clinics by Professor FILLBROWN.

Necrosis	Number of cases operated upon	8
Abcess	" " " " "	8
Antrum Disease	" " " " "	2
Staphylorraphy	" " " " "	1

INFIRMARY.

Number of patients treated for diseases of the teeth	7,567
Total number of Operations performed	18,322

MECHANICAL DEPARTMENT.

Sets of artificial teeth	647
Splints for fractured jaws	51
Splints for cleft palate operations	8
Obturator for perforated palates	9
Appliances for cleft palates	7
Artificial noses	6
Cases of irregularity of the teeth treated and corrected	98
Appliances for regulating	149

Under direction of Drs. COOKE and STODDARD:—

Crowns, caps, and porcelain tips	101
Bridges	10
Specimen crowns and caps	464
“ bridges	115
“ porcelain tips	44
“ “ inlays	31

The staff of instructors in the Operative and Mechanical Departments accepted re-appointment with the exception of Drs. Hardy, Dickinson, and Oldham. Drs. Hardy and Oldham felt that they could no longer make the pecuniary sacrifice necessary to serve the School; and Dr. Dickinson retired to accept a position in Europe. Dr. Oldham had served the School from 1898 to June 1897, and was an instructor of experience and ability. Drs. Hardy and Dickinson were appointed instructors in October 1896, and had proved themselves painstaking and efficient.

But one new appointment was made during the year, that of Harold DeWitt Cross, D.M.D. as Instructor in Mechanical Dentistry.

The Summer School was not so successful in point of numbers as the previous year, there having been but one student in attendance. I

am inclined to believe that the cause of this decline is found in the fact that the Faculty does not grant a certificate of attendance to students taking this course. The School was well advertised, and a large number of letters were received which invariably contained a question relating to the bestowal of a certificate, showing that some evidence of attendance is desired by would-be students.

On the building a small sum has been expended in the way of repairs and general renovation, and a most beneficial change made in the construction of an office combined with a supply room, in direct communication with the Mechanical Laboratory.

EUGENE H. SMITH, *Dean.*

THE VETERINARY SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — AS Dean of the Veterinary Faculty I beg to submit herewith the fifteenth annual report of the School of Veterinary Medicine.

The number of students at the beginning of the year was fifty-two: of these, one entered in 1892; four in 1893; twenty-two in 1894; twelve in 1895; and thirteen in 1896. They were divided as follows:—

First Class	11	Third Class	18
Second Class	17	Special Students	6
		Total	52

Of the special students, one withdrew from the School early in the first half-year; the five remaining completed their work for the year, and four of them gave notice of their intention to enter the regular classes and to finish the course of study for the degree.

Of the eleven members of the first class, one withdrew from the School early in the first half-year, because of serious illness; the remaining ten finished the work of the year.

Of the seventeen members of the second class, all completed the year's work.

The eighteen members of the third class all presented themselves for the final examinations; sixteen were successful. There were four other successful applicants for the degree, thus making a graduating class of twenty,—the largest the School has had.

These graduates represent the last of those students who entered the School under the tuition fee of \$100 a year, that fee having been raised, at the beginning of the year 1894-95 to \$150 a year. This last sum is in excess of the tuition fee at the other American Veterinary Schools,—considerably so in most instances; and while the amount now charged does not, by any means, pay the cost of the instruction given, it may have had an influence in diminishing somewhat the number of students. This is, however, a not unexpected result; and it remains to be seen whether the large opportunity given the students for clinical work, together with the systematic courses of practical instruction given in both clinical medicine and operative

surgery, all of which are marked features of this School, will be so far appreciated by intending students, as to overcome the material increase in the tuition fee.

The statement of the Treasurer of the University for 1896-97 shows that the School has received, for term bills and graduation fees, \$6,937.39; a sum which is \$409.29 in excess of that received from similar sources in 1895-96. In 1890-91 this total income was but \$2,415.

The conditions under which the School of Veterinary Medicine must make its way in the future are now so much changed from those in existence at the time of its foundation, that the problem of its maintenance as a veterinary school of the first class must have careful consideration at this time.

In order that a full understanding of the position may be had, it is necessary to recall briefly some points in our history:

At the time of the organization of this School in 1882, all existing American Veterinary Schools were "private schools," having an ungraded course of study extending, at the most, over a period of two years of from five to six months each, and practically unguarded by any entrance examination.

This School was, therefore, the first to be established in connection with a University and to issue an authoritative diploma; the first to introduce a graded course of study extending over three years of nine months each; and the first to protect its classes by the rigid enforcement of an exactly stated form of entrance examination.

The problem then was to lift American veterinary education to a higher plane,—one which should approach the level of the European schools of the time. It was not supposed that the requirements of this School, at that time, were sufficient and final; but it was believed that the innovations introduced by it advanced the standard of veterinary education as much as was then possible.

From that time, beginning with the University of Pennsylvania in 1884, and ending with Cornell University in 1896, various universities and colleges have established veterinary schools, at which admission examinations and good graded courses of study, extending over three years of nine months each, are maintained. During the same period some of the private schools have been given up and others have been opened; but all the private schools now in existence have adopted admission requirements and the three years graded course of study; although the year is one of "not less than six months" and, as a matter of fact, is not longer than that. Thus it will be seen that the example set by Harvard University has not

only commended itself to other universities and colleges, but has made it necessary for the private schools to advance and lengthen their courses of instruction.

There are, therefore, in the field at the present time, several new schools of good quality, at least two of which are connected with universities of the first class; and these schools are in good measure supported either by the governments of the states in which they are situated, or by liberal private endowment; while the Harvard School has not received, up to this time, any endowment whatever. The present problem, then, is: how shall the Harvard School maintain in the future its proper relative position in competition with schools possessing large endowments?

The University of Pennsylvania has received for its Veterinary Department, endowments which now amount to \$158,000, besides getting the land on which its buildings stand without cost. Cornell University has for its Veterinary School, an endowment which, up to the present time, amounts to \$175,000; and the school is to have, in addition to this sum, \$25,000 a year from the State of New York. In return for this, all students of the school who are residents of the State are to have free scholarships given them. Shall the Harvard Veterinary School have endowment, in recognition of what has already been accomplished without it? Shall the School have endowment to enable it to continue to do its part in a work which is far from finished?

CHARLES P. LYMAN, *Dean.*

THE VETERINARY HOSPITALS.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — I have the honor to submit the report concerning the Hospitals of the School of Veterinary Medicine for the year 1896–97.

The Village Street Hospital has as heretofore received animals at all hours of the day and night. Dr. Foss and the corps of assistants residing in the building have been prepared to care for emergency cases at any hour at which they have been presented. These assistants have been appointed from the Senior Class according to rank, and their appreciation of the practical advantages of the positions has been such that the competition for the appointments has been sharp, resulting in a general improvement in standing.

No changes in methods have been made during the year, the same fixed rates having been maintained.

The following table shows the classification of all cases treated within the Hospital and the organs involved:—

Months.	Genito-Urinary.	Locomotor.	Respiratory.	Circulatory.	Nervous.	Digestive.	Special Senses.	Operations.	Skin Disease.	New Growths.	Total.
November . .	4	11	7	8	1	21	8	18	17	4	94
December . .	1	15	23	1	9	17	8	15	2	1	87
January . . .	2	19	13	3	9	8	5	12	10	2	83
February . .	2	10	12	2	4	8	1	13	4	2	56
March	3	14	11	9	11	5	20	11	1	..	84
April	2	17	11	2	9	10	6	12	6	2	77
May	13	12	1	9	9	2	20	7	2	..	76
June . . . . .	..	14	8	1	7	15	1	16	8	..	70
July	1	15	6	2	6	19	..	9	7	1	66
August	1	6	14	1	3	20	8	9	12	..	69
September . .	1	13	8	..	7	8	1	14	10	..	63
October . . .	1	14	5	..	10	17	5	18	11	2	88
Totals . . .	30	160	119	33	85	150	73	154	90	14	906

Besides the cases mentioned above, a large number are brought to the Hospital for examination and advice and returned at once to

their homes. This comprises the "Out Clinic." The classification of the cases examined at this Clinic is exhibited in the following table:—

Month.	Genito- Urinary.	Locomotory.	Respiratory.	Circulatory.	Nervous.	Digestive.	Special Senses.	Operations.	Skin Diseases.	New Growths.	Exam. for Scandals.	Total.
November	1	16	16	5	4	18	1	28	20	3	16	123
December	2	20	31	2	2	14	1	29	16	..	2	119
January	..	15	30	10	4	11	15	23	15	4	10	147
February	1	28	15	9	7	16	6	22	11	2	..	121
March	3	48	29	5	4	19	2	10	14	2	5	170
April	2	35	25	16	4	12	4	22	15	2	..	187
May	..	23	11	7	5	11	3	31	14	..	3	117
June	1	29	19	16	2	10	4	26	16	1	5	180
July	1	12	6	1	3	8	1	25	18	..	2	77
August	..	19	4	1	3	18	..	11	17	1	..	72
September	1	10	1	1	4	11	1	20	15	1	15	80
October	2	15	16	..	2	15	3	26	29	..	16	124
Totals	11	270	209	78	44	159	41	306	204	16	80	1416

The usual Clinical Lectures were given daily at 10 A.M. to students of the second and third year classes:—

Monday Dr. Howard.

Thursday Dr. Osgood.

Tuesday Dr. LaBaw.

Friday Dr. Leonard.

Wednesday . . Dr. Cronan.

Saturday Dr. Foss.

The Charity Hospital, located at 255 and 257 Northampton Street and fully described in my last report, has been conducted purely as a charity for the animals of persons who are unable to pay the usual fees.

The daily clinic has been held from 1 P.M. to 4 P.M., although emergency cases have been treated at all times.

During the year ending July 31st, 1897, 3372 cases, Medical and Surgical, have been treated as per table below:—

The practical advantages to our students from this institution have been many. It has more than doubled their opportunity for clinical observation, and greatly increased their skill in securing and operating, their judgment in diagnosis and prescriptions, and hence their confidence in their own ability.

Months.	Genito-Urinary.			Locomotor.			Respiratory.			Circulatory.			Nervous.			Digestion.			Special Senses.			Operations.			Skin Diseases.			New Growths.			Glands.	Other Animals.	Total Number Cases Month.		
	H. D. C.			H. D. C.			H. D. C.			H. D. C.			H. D. C.			H. D. C.			H. D. C.			H. D. C.			H. D. C.			H. D. C.							
	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.					
August . . .	0	0	0	32	3	2	3	3	0	0	0	0	3	5	0	8	23	10	1	15	1	78	16	12	1	22	4	0	0	0	1	1 Horse.	243		
September . .	0	0	0	29	11	2	2	3	0	0	0	0	0	5	0	10	20	0	1	8	0	76	18	9	0	25	3	0	0	0	3		225		
October . . .	0	1	0	59	7	3	5	4	1	1	2	0	0	9	0	11	10	2	3	4	0	93	15	12	4	18	1	1	1	0	1		268		
November . .	2	0	0	61	13	3	4	11	1	1	0	0	0	2	0	10	7	6	1	2	0	109	33	14	1	19	5	7	4	0	0	1	2 Pigeon. 3 Parrot.	323	
December . .	1	1	0	42	21	7	0	15	1	0	0	0	0	3	1	2	16	10	3	19	0	98	18	17	0	16	9	0	2	0	3	4 Rabbit.	311		
January . . .	1	2	0	34	10	5	1	9	2	0	1	0	0	6	0	2	10	5	0	6	2	70	31	25	1	10	4	2	4	0	1	1	3 Pigeon 3.	247	
February . .	2	2	0	37	10	12	5	14	0	2	0	0	1	3	1	7	13	8	2	12	3	82	32	32	5	14	6	4	4	1	2		321		
March . . .	0	0	0	45	6	13	2	5	1	3	0	0	0	5	0	7	14	8	0	15	0	76	26	45	2	11	8	2	3	1	1		299		
April . . .	1	1	0	56	10	2	5	3	0	3	1	0	0	5	0	4	20	1	0	15	0	87	12	25	4	14	1	3	2	1	3	1	3	2 White Rat. 7 Pigeon.	280
May . . .	0	0	0	35	13	1	3	7	0	1	2	3	0	3	3	9	24	4	0	21	1	56	26	23	5	17	0	4	3	1	5		273		
June . . .	0	0	0	55	19	0	0	7	1	0	1	0	1	6	0	10	11	6	0	9	0	79	25	26	0	14	2	0	4	0	1	1	2 Ferret.	278	
July . . .	1	0	0	42	10	4	4	6	2	0	0	1	0	6	1	12	19	16	1	11	1	108	18	36	2	29	6	4	10	1	1	1	3 Canary. 10 Ferret 11 Pigeon.	355	
Totals . . .	8	7	0	537	133	54	34	87	9	11	7	4	5	63	6	92	186	76	12	137	8	964	275	276	25	209	49	27	37	5	21	13		3372	

¹ Destroyed by request S. P. C. A.² Removal of teeth.³ Tumor on eyelid.⁴ Tuberculosis.⁵ Abscess.⁶ Foreign body in mouth.⁷ Removal of tooth.⁸ Injury to abdomen.⁹ Fracture of leg.¹⁰ Injury to head.

H. = Horse. D. = Dog. C. = Cat.

If we may judge from the number of cases presented, it is doing a work which the public need and appreciate; but it must, of course, be supported by the charitably disposed or become a charge upon the Veterinary School. For this reason a circular asking for pecuniary aid was sent out which met with a response to the extent of nine hundred dollars.

FREDERICK H. OSGOOD,
Surgeon in Charge.

THE BUSSEY INSTITUTION.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I respectfully submit the following report on the School of Agriculture and Horticulture for the year 1896-97:—

Seventeen students were enrolled at the Bussey Institution in the course of the academic year, and the degree of Bachelor of Agricultural Science was conferred upon two of them at Commencement.

It is remarkable that in five of the last six years the number of students at the Institution has been a well nigh constant quantity. There were fifteen students in the year 1891-92, sixteen in the year 1893-94, fifteen in 1894-95, sixteen in 1895-96, and seventeen in 1896-97.

Regular instruction was given as usual throughout the year in Agriculture, Horticulture, Agricultural Chemistry, and Chemical Analysis by Messrs. Hersey, Watson, and Storer. Some of the students attended courses of instruction at Cambridge also.

The appointment at the close of the year of Mr. E. W. Morse, B. A. S., as Instructor in Natural History, has strengthened not a little the teaching power of the School. Henceforth it will be easy to occupy fully, at the Bussey Institution, the time of the first year students without need of subjecting them to the great inconvenience of studying anything at Cambridge before they are ripe and ready to spend most of their time there.

Two parts or numbers (V and VI of Vol. II) of the Bulletin of the Bussey Institution were published in the course of the year, containing respectively articles on the Cultivation of the White Pine by Mr. Edmund Hersey, the Instructor in Agriculture, and on Some of the Chemical Substances in the Trunks of Trees, by the Professor of Agricultural Chemistry.

The Institution suffered a very serious loss by an incendiary fire, on July 19, 1897, which destroyed two of the large farm barns with their contents of one hundred tons of hay, many tools, and, most unhappily, a number of horses also. There were twenty-three horses in the barns at the time of the fire, and ten of them were suffocated while thirteen were saved unhurt—though with difficulty and at no small risk—thanks to the courage and activity of the Farm-Foreman, Mr. David M. Patch, and his employees, and the willing aid of residents of the neighboring village of Roslindale.

F. H. STORER, *Dean*.

THE LIBRARY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — Mr. Winsor died, October 22d, 1897, after a short illness. He had prepared this report in outline, and had arranged the reports of the shelf department as they appear. The figures for the year have since been inserted in the tables, and extracts added from the reports of the cataloguing and ordering departments. Certain additions and alterations in the body of the report are indicated by brackets.

WM. H. TILLINGHAST, *Assistant Librarian.*

NOVEMBER, 1897.

We have added a single number to our *Bibliographical Contributions* during the year:—namely, No. 52: *The Librarians of Harvard College, 1667-1877*, by Alfred Claghorn Potter and Charles Knowles Bolton.

The accessions to the University Library for the year, and the present extent of the various departments, are as follows:—

Principal Departments.	Volumes added.	Present extent in	
		Volumes.	Pamphlets.
Gore Hall (College Library) .	10,401	855,607	851,928
Law School	2,968	40,872	4,471
Lawrence Scientific School . .	177	4,967	14
Divinity School	399	27,500	5,640
Medical School	85	2,169	..
Museum of Zoölogy	548	81,199	1,800
Astronomical Observatory . .	868	8,685	12,992
Botanic Garden (Herbarium) .	162	7,276	4,748
Busey Institution	50	3,650	100
Pezbody Museum	88	1,838	2,479
Arnold Arboretum	260	5,750	5,936
Dental School	28	46	..
Total	15,474	489,509	800,108

If to this total of 489,509 volumes be added the 15,326 volumes of the permanent collections in the laboratories and class-rooms, (see below) we have a grand total of 504,835 volumes for the University

Library, and if unbound pamphlets be included the total number is 894,943.

The Whitney Library of Geology, about 5000 volumes and 1500 pamphlets, is now included in the count of the Museum Library. No deduction has been made in the General Library for volumes parted with on exchange account, or for transfers to departmental libraries.

The Medical School depends upon the Collections of the Boston Medical Library Association, kindly thrown open to its use.

[The Dental School has recently undertaken to form a library of its own. It possesses a number of volumes now deposited with the Boston Medical Library Association, not included in this report.]

The present extent of the laboratory and class-room libraries is as follows :—

	Permanent.	On Deposit.	Totals.
<i>Laboratories.</i>			
1. Chemical	567	1,108	1,675
2. Zoölogical	257	..	257
3. Geological	252	..	252
4. Botanical	538	154	707
5. Physical	6	858	859
6. Physical Geography	380	156	486
7. Mineralogical	509	219	728
<i>Class-Rooms.</i>			
1. Classical	2,996	148	3,139
2. History	1,852	1	1,853
3. United States History	804	..	804
4. Political Economy	852	1	853
5. Mathematics	276	72	348
6. French	1,917	..	1,917
7. Child Memorial	959	41	1,000
8. Sanskrit	416	..	416
9. German	436	..	436
10. Social Questions	812	..	812
11. Music	101	..	101
12. Philosophy	867	26	403
13. Semitic	777	..	777
14. Romance Languages	497	2	499
15. Fine Arts	12	..	12
16. Fogg Museum	55	..	55
17. Architecture	180	..	180
18. Preacher's Library (Wadsworth House)	48	..	48
Totals	15,826	2,286	17,612

An assistant is sent from the Central Library every day to examine the shelves of these libraries by the shelf-lists, and the titles of missing books are reported at once to the officer of instruction in immediate charge of the library where such loss or misplacement has been discovered. Eight of these libraries are open for evening use.

[During the past year a fund of \$11,028.76 was raised by friends of Professor Child and paid to the College Treasurer under an agreement whereby the interest is to be used for the buying of books relating to the study of English, and for their maintenance in a proper state of repair and binding. A gift of \$250 for immediate use has also been received. The choice of the books rests with the Department of English, but the purchase is to be made by the College Library as in the case of other class-room libraries. The books of the English class-room Library are now merged in the Child Memorial Library. The Committee on the Child Library has had a special book plate engraved.]

The accessions to the Gore Hall collections include 1055 volumes of bound serials (received in parts), and 728 volumes made by binding single pamphlets.

[The principal gift has been a collection of about 700 volumes of music, mostly scores of modern composers, from the library of Professor J. D. Whitney, given by Miss Maria Whitney.]

GIFTS TO THE GORE HALL COLLECTION.

	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
Volumes	4,118	6,026	4,351	3,903	5,048
Pamphlets	13,770	16,598	7,522	8,908	8,427
Totals	17,888	22,624	11,873	12,811	13,475

The accessions of recent years to the University Library (excluding the laboratory and class-room libraries) have been as follows:—

Volumes.	Volumes.	Volumes.
1879-80 . . . 7,247	1885-86 . . . 9,191	1891-92 . . . 13,785
1880-81 . . . 9,804	1886-87 . . . 11,924	1892-93 . . . 22,370
1881-82 . . . 9,129	1887-88 . . . 16,468	1893-94 . . . 15,788
1882-83 . . . 9,818	1888-89 . . . 12,253	1894-95 . . . 15,325
1883-84 . . . 12,860	1889-90 . . . 16,051	1895-96 . . . 17,317
1884-85 . . . 14,558	1890-91 . . . 13,276	1896-97 . . . 15,474

The following table shows the use of books at Gore Hall in 1896-97 as compared with previous years : —

	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
1. Books lent out . . .	70,086	71,484	80,380	82,618	81,381	82,011	89,611
2. Used in the building (Recorded use.)	15,861	19,648	23,671	22,442	23,500	22,280	22,965
Total	85,997	91,082	104,051	105,060	104,881	104,291	112,576
No. of books reserved .	6,258	6,397	6,652	7,427	6,847	7,742	8,090

The overnight use of reserved books, discontinued at Gore Hall since the Reading Room was opened at night, is now maintained in the library room in Harvard Hall (where are gathered under an attendant, the class-room collections in History, Political Economy and Social Questions, 3842 volumes in all), and during the year last passed, 9288 volumes were given out at 4.30 P.M. for overnight use, that room closing at 5 P.M.

The increasing number of books reserved in Gore Hall — of whose hall-use no record is kept — has a tendency to decrease the number of volumes used in the building, of whose use record is made. It is the observation, however, of those in charge of the reference service, of which no statistics are kept, that it is constantly increasing, year by year, and that the increase for last year was very great.

READING ROOM COLLECTIONS.

	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
Bound Periodicals .	3,198	3,287	3,340	3,444	3,525	3,619
Reference Books . .	2,409	2,562	2,704	2,696	2,766	2,822
Reserved Books . .	. . .	. . .	. . .	. . .	7,677	8,090
U. S. Documents . .	. . .	. . .	. . .	. . .	4,500	3,465
Total . . .	5,607	5,849	6,044	6,140	18,468	18,996

The Reading Room now consists of the large hall (225 seats), the History room (50 seats, including a reserved space for Radcliffe students), and the periodical gallery below the History room.

The number of students of Radcliffe College who have borrowed books during the past eight years is shown in the following table:—

BORROWERS FROM RADCLIFFE COLLEGE.

Years.	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
1. Borrowers . . .	84	82	111	132	108	156	155	167
2. Books borrowed .	1,829	980	886	1,067	1,162	1,672	1,502	1,820

Their own collection of 11,800 books supplies naturally their main needs.

The percentage of users among the undergraduates during recent years is given in the following table, which shows, however, only such students as were registered at the general delivery desk in Gore Hall, and drew books at that desk:—

	1889-90.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
Seniors	90	90	92	96	99	97	91	88
Juniors	88	93	96	90	98	99	95	92
Sophomores	85	88	93	92	94	90	84	82
Freshmen	80	80	78	77	77	67	69	61

STUDENTS' USE OF THE GORE HALL LIBRARY.

Students of	1891-92.		1892-93.		1893-94.		1894-95.		1895-96.		1896-97.	
	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.
Divinity . . .	89	89	41	41	47	41	50	40	41	41	37	36
Law	363	165	394	161	353	169	404	176	465	186	475	217
Scientific . .	118	71	181	93	280	139	308	144	340	128	368	162
Resident Grad.	176	161	190	157	241	209	242	204	285	213	279	224
Senior Class .	271	221	327	300	323	296	327	318	333	334	328	290
Junior Class .	304	281	327	298	352	320	348	335	338	320	377	311
Sophom. Class	331	274	335	298	349	313	425	323	445	303	473	268
Freshm. Class	331	284	409	354	425	352	399	236	462	230	416	263
Sp. Students .	169	114	149	105	162	116	166	127	160	122	160	120
Total . . .	1891	1490	2404	1703	2577	1855	2671	1903	2902	1928	2913	1891

The following table shows for a series of years the use made of "Admission-Cards," by which students have access to special classes of the books for investigation at the shelves : —

ADMISSION-CARDS.

	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.
History	81	53	36	41	59	68	63	66	54
Science	9	6	8	0	26	27	9	4	11
Art (including Music) . .	24	19	15	13	4	8	5	11	18
Literature	27	33	38	45	63	63	58	63	64
Classics	24	22	10	22	26	45	44	41	11
Philosophy	16	9	12	16	5	17	12	6	4
Theology	6	4	8	9	12	8	3	1	1
Political Economy . . .	25	10	7	14	9	13	15	12	4
Education . . . . .	..	..	..	..	..	3	..	1	5
Geography . . . . .	..	..	..	..	..	..	..	..	8
Total students	212	158	144	163	205	210	209	205	210
Times of use	8,390	6,490	2,512	3,629	4,560	5,974	4,558	4,601	4,381

Twenty-one years ago only 57% of all the College students used the Library. [Between 1883 and 1896 the percentage has varied from 92 to 79, with a downward tendency since 1888. In the last year, of the 1754 undergraduates 502 failed to take out books, reducing the percentage of borrowers to 72. This decrease in the students drawing books at the desk has accompanied the growth of class-room libraries, and is particularly marked since the issue of books for over-night use has been discontinued and the opening of the Reading Room in the evening has enabled readers to use the books they need without record of that use being made. It is offset by a great increase in the number of books thus used without being charged, and probably does not indicate any falling off in the general use of the Library or in the borrowing of books for reading as distinguished from the reference use, though this is a point upon which definite information is not easily obtained.]

There is no record made of the use of the 539 periodicals, current numbers of which are on file in the Reading Room and are open to everyone's inspection without formality.

The number of scholars from a distance who come to Cambridge for the purpose of making use of the Library is constantly increasing, and during the last year 64 such persons have been granted temporary privileges in the Library, borrowing 656 volumes; and under

BORROWERS REGISTERED AT GORE HALL.

	1893-04.	1894-05.	1895-06.	1896-07.
Students	2,104	2,069	2,395	2,323
Instructors	174	198	191	242
Others	489	645	588	453
Total	2,767	2,912	3,169	3,016

SUNDAY USE.

	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.	1899-00.	1900-01.	1901-02.
Days open	37	37	37	37	37	37	36	34	35
Users	3,024	3,089	3,104	3,284	3,716	3,658	3,654	3,859	5,010
Average	81	83	83	88	100	99	100	98	143
Highest No.	106	118	132	119	135	136	131	140	227

restrictions 204 volumes have been sent to 34 persons or institutions situated at a distance, including these colleges: Bowdoin, Brown, Bryn Mawr, Chicago, Clark, Colby, Columbia, Cornell, Dalhousie, Dartmouth, Meadville, Michigan, Missouri, North Carolina, Oberlin, Pennsylvania, Princeton, Texas, Union College, Union Theological Seminary, Wellealey, Wesleyan, Yale.

Mr. Frank Carney and Mr. N. D. C. Hodges, who have immediate charge of the shelves, report that 36,112 volumes have been permanently placed in the stack since the last report (5424 added to classes previously arranged and 30,688 newly classified), making 184,622 so placed out of the volumes constituting the Gore Hall collection.

The newly classified books are as follows:—

Geographical periodicals	1,255 vols.
Archæology	3,809 "
Fine Arts	4,900 "
Music	4,343 "
Slavic History and Literature	3,255 "
Learned Societies	4,897 "
Scientific periodicals	6,729 "
Physics	1,500 "
	<u>30,688 "</u>

Beside this, there are nearly arranged

Philosophy	6,500 vols.
Spanish, Italian, Portuguese, etc.	3,000 "
Chemistry	1,500 "

The geographical periodicals were brought together at the request of Professor Davis to facilitate his work. The periodicals not in this Library, but in the Museum library, were transferred to make the collection here more complete.

In the arrangement of the archaeological and fine arts books Dr. Hayley rendered valuable assistance. To provide for a number of large volumes in this collection steel roller shelves were put in the west transept of the third floor.

The music was arranged by Mr. Ayer, and the Slavic collection by Mr. Wiener. A large number of the books in the latter collection are the recent gift of Dr. A. C. Coolidge.

In arranging the scientific serials a departure was made from the usual plan of placing each set, divided according to subject, with the other books in that subject, — chemical serials with chemical treatises, botanical serials with books on botany, and so on. Scientific serials are record books, containing the original reports of investigations; and it is to these original records that the student has constant occasion to refer in preparing a paper and not to the summaries and digests to be found in the text-books. As these students come to the Library with a number of references to serials which might be scattered in several different departments, it seemed likely to facilitate such reference work if all the scientific serials were brought together and then classified by subject; and this has been done. The classification by subject of the whole group is as follows: general science; astronomy, subdivided into ephemerides, reports of observations, and journals; mathematics; physics; chemistry; applied physical science, including engineering; natural history; zoölogy; botany; geology and mineralogy; scientific surveys, mainly geological; mining and metallurgy; anthropology. The geographical and meteorological journals had been arranged previously on a temporary plan, and it was not deemed desirable at this time to disturb them.

The learned society publications, which contain matter of the same record nature, have been placed next the scientific serials; though, of course, many of these societies having other sections than those strictly scientific, these volumes contain historical, philosophical and philological material, but so sandwiched in with the scientific that their division into distinct sets is often impracticable; while, for the reference work of the student of the humanities and others, the concentration of these books can but be advantageous.

The free space for re-classification is entirely used, and the work can only be carried on at a disadvantage and by a large amount of

shifting and crowding of the new classification. This will make the re-classification the coming year more laborious and less rapid.

What is needed at once is the space now occupied by the Reading Room. If stacks were put into this space there would be room enough for the rearrangement of the books in the new stack. To properly arrange books and leave room for growth, about twice as much space is needed as the books occupy when packed tightly on the shelves.

The examination of the Library by the shelf lists has been made this year by Mr. William D. Goddard, and he reports to Mr. Carney as follows:—

The annual examination of the shelves was begun Nov. 16, 1896, and was carried on during afternoons from 2 o'clock to 5 until May 28, 1897. Owing to unavoidable interruptions caused by work in class-rooms and the Reading Room only 115 days out of the six months were free for the examination; and as the average time per day was only $2\frac{1}{2}$ or 3 hours, the whole time occupied in examination was equivalent to between 40 and 45 full days of work. This excess of time over the month usually allotted for examination is due to the fact that the whole work was done by one person, and not with an assistant as heretofore.

But aside from the regular examination of the shelves there was made a cursory review of parts already examined at intervals of four or five weeks to see whether missing books had been replaced in the meanwhile, and in the course of these reviews opportunity was taken to correct any disorder on the shelves.

The condition of the Library as regards misplacements is much more satisfactory than it was last year, since they numbered 89 against 308 for 1895-96. Also, the list of missing books is much shorter than that of last year. Especially is an improvement noticeable in the losses from the Reading Room, where, stricter regulations having been enforced as to the use of reserved books, the total loss is 22 volumes as compared with 61 last year. From the stack 33 books are missing, the same number as last year.

The following table will show the losses in volumes for fifteen years. It should be remembered that these losses only pertain to that portion of the Library which has been rearranged and to all new books received since 1877. The rest of the Library, now undergoing classification, does not yet afford records by which an examination can be satisfactorily made.

LOST BOOKS, 1883-1897.

Years.	Reported lost.	Later found.	Now missing, 1897.		
			Reserved.	Stack.	Total.
1883	78	37	17	24	41
1884	51	51	3	7	10
1885	70	34	54	12	36
1886	41	26	11	14	22
1887	36	23	8	11	13
1888	49	29	13	7	20
1889	84	20	10	4	14
1890	98	59	54	11	35
1891	175	35	110	24	140
1892	65	22	51	19	43
1893	53	25	20	8	28
1894	165	43	112	8	123
1895	77	36	30	11	41
1896	74	14	61	19	30
1897	55	..	22	33	55
Totals	1142	442	494	205	699

The stack is open to the entire staff of instructors; to students who hold cards of admission; to the Library staff; and to an occasional investigator. Such an aggregate of frequenters will have an inevitable percentage of careless people, to use no harsher term. The larger part of the reserved and reference books are practically open to the handling of any one who chooses to touch them, and offer a field for depredation to any irresponsible person. [The introduction of a regular and systematic inspection of the shelves in the stack, and the withdrawal from the open shelves in the reading-room of some 500 volumes which are now issued for hall-use upon presentation of signed call-slips, are changes which have much reduced misplacement and loss.]

Mr. Tillinghast, the Assistant Librarian, furnishes the following report of the work of the Catalogue department:—

TITLES CATALOGUED.

	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
College Library	7,969	7,753	8,350	7,564	8,000
Dep't and Class-room Lib. . .	1,772	2,264	2,008	2,668	2,320
Totals	9,741	10,017	10,358	10,232	11,310

The work of the past year may be compared with the work of other years as follows : —

Year.	Gore Hall cards prepared.	Titles catalogued for departments.	Volumes received in Gore Hall.
1885-86	28,500	957	6,780
1886-87	29,329	1,021	9,108
1887-88	28,696	1,391	10,222
1888-89	21,256	1,721	9,046
1889-90	24,584	1,438	13,140
1890-91	21,259	1,554	9,606
1891-92	27,167	2,381	9,724
1892-93	28,975	1,772	11,446
1893-94	20,168	2,264	10,826
1894-95	19,969	2,009	10,968
1895-96	27,428	2,668	11,219
1896-97	21,288	2,320	10,401

I append some extracts from the more extended report which Mr. Tillinghast has made : —

During the past year three cataloguers have obtained better paid positions elsewhere and two new assistants have been employed ; the year before three new cataloguers were employed, two of them to fill vacancies. Such rapid changes in the cataloguing force of a large library are extremely unfortunate, but nevertheless more titles were catalogued this year than the year before, and the arrears were somewhat reduced, although 8847 titles still remain recorded on temporary slips only, together with a large part of the Russian and other Slavic works given by Dr. Coolidge ; and 1470 bound volumes of pamphlets are uncatalogued. It must be remembered that of the 8847 titles most are books of little value, the more useful works having been picked out ; that the Slavic books are now classified on the shelves, and to that extent accessible ; while the pamphlet volumes are made up by subjects and placed on the proper shelves, and a beginning has been made in subject-cataloguing them. In the ordinary cataloguing the work of printing accession strips and cards has gone forward with very little interruption.

The re-classification of several groups of books threw upon the cataloguing department the task of putting new shelf-marks on all the cards affected in all the catalogues. This was done by several persons working evenings from December to May and since by one person, who has become trained to the work. At the end of the year the shelf-marks of all titles at that time re-classified had been changed, 31,395 cards having been marked.

The public catalogues have long been overcrowded. The author catalogue contained 306 double drawers with 6226 inches of cards and guides; the subject catalogue 342 double drawers with 6367 inches of cards and guides, — in all, 648 double drawers with 1050 feet of cards and guides. To relieve the catalogues 280 single drawers or trays were constructed; these are intended to be removed from the case and consulted at some convenient shelf in order that the use of other trays may not be prevented, as often happens with drawers that are locked in the case. In August and September the author catalogue was expanded to fill the whole case in the centre of the delivery room, and fitted with new guide-cards. The opportunity was taken to insert in the author catalogue the title references for Drama and Fiction, which were before this placed under those headings in the subject catalogue. The adjustment of the subject catalogue is now in progress.

The work of the Ordering department, in the immediate charge of Mr. Potter, is shown in the following statement: —

FINANCIAL CONDITION (*Gore Hall only*).

	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
Income for books* .	\$18,824	\$18,922	\$18,790	\$19,848	\$19,563	\$16,762
Spent	16,566	16,903	15,108	14,616	17,131	14,760
Balance	2,258	2,019	3,682	5,232	2,432	2,002
Appropriation . . .	18,700	18,150	none	19,475	19,325	6,000
Unpledged balance†	9,501	8,284	5,121	11,606	9,793	5,832

PAYMENTS AND PURCHASES (*Gore Hall only*).

Years.	Income, excluding balance brought forward.	Payments.	Vols. bought.	Vols. of serials added.	Sum of last two columns.	Average cost per vol.
1885-86	\$15,832	\$18,928	3,032	682	3,714	\$5.75
1886-87	17,052	14,549	4,490	746	5,236	2.77
1887-88	15,732	16,061	5,889	798	6,187	2.69
1888-89	15,799	17,839	4,925	638	5,563	3.11
1889-90	15,275	15,187	4,168	838	5,006	2.92
1890-91	15,853	18,905	3,230	855	4,085	2.40
1891-92	16,491	16,566	4,904	694	5,598	2.96
1892-93	16,583	16,903	5,624	841	6,465	2.61
1893-94	16,899	15,108	2,932	928	3,860	\$1.19
1894-95	15,720	14,616	5,203	928	6,131	2.32
1895-96	15,623	17,131	5,854	1,036	6,890	2.48
1896-97	18,929	14,760	3,531	1,055	4,586	3.21

* The items of income include unexpended balances of the previous year.

† What is called "unpledged balance" is income free from obligations for serials and outstanding orders.

The figures for income and payments, in the above tables, are taken from the Treasurer's Report, except those for the last year, which are made up from the library accounts. The average cost per volume for ten years is \$2.71.

SUMMARY OF NEW ORDERS SENT.

	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
Gore Hall	\$10,506	\$9,383	\$8,968	\$12,445	\$9,323	\$5,970
Departments . . .	2,770	2,663	2,934	3,240	4,556	3,245

ESTIMATED AMOUNT IN DOLLARS OF ORDERS SENT TO PRINCIPAL AGENTS
(Gore Hall only).

	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
American . . .	895	1,174	2,157	1,488	1,055	2,612	2,459
English . . .	2,048	1,334	2,844	2,532	1,085	3,390	2,086
French . . .	1,234	585	1,437	1,144	544	1,640	1,263
German . . .	1,410	1,189	3,204	3,587	1,072	3,536	2,727
Italian . . .	200	111	717	117	138	965	562
Scandinavian .	52	50	78	81	11	209	69
Spanish . . .	..	..	69	158	15	92	57

The division among agents gives only an approximate representation of division by languages, since books in all languages may be bought in London, as Spanish and South American books usually have been, and Slavic books are mainly bought through the German agency. We usually buy more titles in German than in any other language.

TABULATION OF ORDERS (*University Library*).

Order slips on hand October 1.	1891.	1892.	1893.	1894.	1895.	1896.	1897.
Book orders out . . .	2,350	2,658	1,423	1,111	2,140	1,868	2,188
Continuation orders out	2,400	2,589	2,789	3,078	3,125	3,270	3,452
Total active orders	4,750	5,197	4,212	3,764	5,265	5,138	5,640
Cancelled orders* . .	8,600	9,200	9,900	10,400	11,000	11,700	12,400
Deferred orders* . .	942	984	668	1,227	925	1,450	1,400
Countermand'd orders*	..	..	795	1,160	700	700	700
Grand total	14,292	15,381	15,575	16,551	17,990	18,988	20,140

* Estimated.

The following table shows the number of books recommended to be bought for the University Library, the number of these already in the Library; the number ordered, and of these last the number for which there was reason for haste in transmitting the order:—

Purchases and Gifts.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.
Titles, Recommend'ts	4,545	4,326	5,396	3,575	7,820	5,744	4,152
In the Library . . .	711	953	1,334	745	2,213	1,863	964
Ordered	4,863	3,598	3,744	2,192	5,609	3,798	3,016
In haste	122	197	220	200	539	317	275
Gifts, b'ks and pamp's	9,992	5,566	17,888	22,624	11,873	12,811	13,475

It must be understood that the figures in a column have no relation to other figures in the same columns, for books may be recommended in one year and ordered in the following year, etc.

We received 22 shipments of boxes from foreign agents during the year. Separated by agents they show 1208 volumes from agents in England; 522 from France; and 2006 from Germany; 239 from Italy. The total receipts from abroad for the year were 3975 volumes and 194 maps, against 6963 volumes in 1895-96, 7140 in 1894-95, 4524 in 1893-94, and 6274 in 1892-93.

The success of our principal agents in filling orders is shown in the following table, by *per cent.*:—

Agents.	1893-94.	1894-95.	1895-96.	1896-97.
Sever* (Cambridge)	97	96	94	95
Littlefield (Boston)	57	77	76	71
K. Paul, etc. (London)	81	85	81	76
Reinwald (Paris)	79	80	80	83
Harrassowitz (Leipzig)	80	81	86	86

It should be borne in mind that there is a different degree of difficulty in filling orders lodged with the several agents, and when orders are sent from second-hand catalogues, there is a chance of the books having been sold.

Mr. Potter closes his report with some statements, of which an abstract is subjoined:—

The policy of the year past has been one of constant retrenchment, and a large number of orders, especially under the reserve fund, have been deferred. The outlook for the coming year is discouraging in the extreme. The income and the free balance are each smaller by several hundred dollars than last year. Strict economy in forwarding orders will be necessary;

in other words, the Library will be unable to purchase many of the books needed by the professors and students in their work. Indeed, the main function of the ordering department bids fair to become the discouragement of ordering. In the last report reference was made to the cost of periodicals and other serials as an increasing though perhaps necessary drain on our resources. There is again a slight increase in this charge, which now amounts to about half of our annual income.

In the last twenty years the invested capital of our book funds has been increased, by the establishment of ten new funds, from \$173,000 to \$359,000, or over 100 per cent., but the rate of interest has fallen off so in the same period that the income from these funds has only increased from about \$11,000 in 1877-78 to \$15,000 in 1897-98, a gain of 36 per cent. The Library meanwhile has grown from 164,000 volumes in 1877 to 355,600 volumes to-day. The number of professors, students, and other users of the Library has increased in a larger ratio, and their needs, owing to the change in the methods of study and research, have grown in much greater proportion. This Library has done much to foster this new scholarship in America, but it now finds itself wholly unable with the means at hand to satisfy the demands it has thus created. The Library is constantly falling behind its own standards; and until its book funds are substantially added to its usefulness must continually diminish as it becomes more and more in arrears in the current publications in all branches of knowledge and less able to fill the many important gaps left in the older literature. The present income doubled would not be more than sufficient to answer the legitimate demands for new books.

JUSTIN WINSOR, *Librarian.*

THE GRAY HERBARIUM.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—The whole number of specimens of dried plants received by the Herbarium during the year 1896–1897 has been 11,971. The following donations, from their size or special value, merit particular mention: 1077 specimens of grasses of the western United States and Mexico, from Professor F. L. Scribner, Agrostologist of the Department of Agriculture; 939 dried plants, chiefly of Montana and Idaho, from Mr. F. V. Coville, Botanical Curator of the National Museum; 536 plants of the Caucasus, Persia, and Amur, from the Imperial Botanical Gardens in St. Petersburg; 339 plants of Iowa and Colorado, from Professor L. H. Pammel; a set of 172 *Sphagna*, critically edited by the late Professor D. C. Eaton and Mr. Edwin Faxon, contributed by Mr. Geo. F. Eaton; 328 plants of Japan, from Professor Kingo Miyabe; 349 specimens of East Indian grasses, critically determined by Sir Joseph Hooker during the preparation of his Flora of British India, and contributed by Professor W. T. Thiselton Dyer, Director of the Royal Gardens at Kew; 332 plants of California, from Mr. W. L. Jepson; 319 plants of Mt. Rainier and the Olympic Range, from Professor C. V. Piper; 121 plants chiefly of Brazil, from Professor E. Warming (received through Dr. W. G. Farlow); 185 plants of Wyoming, from Professor A. Nelson; 507 of the rarer plants of Southern Mexico (including many new and noteworthy species), from Mr. C. G. Pringle; and 129 plants of South Africa, from Professor P. MacOwan. The chief collections secured by purchase have been: 214 plants of Florida, from Mr. A. H. Curtiss; 491 plants of Kansas, from Professor A. S. Hitchcock, 307 plants of Oaxaca, Jalapa, and Nicaragua, from Mr. Chas. L. Smith; 323 plants of Mississippi, from Mr. C. L. Pollard; 386 plants of St. Croix, W. I., from Mr. A. E. Ricksecker; 922 plants collected by Dr. Edward Palmer in the vicinity of Durango, Mexico, and the first two centuries of ligneous plants distributed by Professor E. Koehne of Berlin. The entire number of sheets of mounted specimens added to the organized portion of the Herbarium during the year has been 9,270.

For some years the scientific work of the Herbarium has been restricted to the higher (vascular) plants. But many sheets of thallophytes, chiefly algæ and lichens, early incorporated in the

Herbarium, have until recently remained upon its shelves. For obvious reasons these plants have now been transferred to the Cryptogamic Herbarium in the University Museum, where they can receive the attention of specialists and be much more useful.

The number of books added to the Herbarium Library has been 162, and of pamphlets 242. The entire number of books and pamphlets in the library now amounts to 12,024.

During the past year the staff of the Herbarium has consisted of a curator, a collector, two scientifically trained assistants (one working full time and one half time), a librarian, and an assistant for manual work (chiefly the mounting of specimens). Considering the scientific prominence which the Herbarium has long enjoyed, and the consequent work imposed upon it, this staff is decidedly too small; and notwithstanding its efforts to the contrary the correspondents of the Herbarium must often experience long and vexatious delays before reports can be made upon the plants and collections submitted for investigation. But, small as the staff now is, several of its members must be dismissed after September 1st, 1898, unless further endowment, or gifts for present use, can be secured. The Curator would have been forced to make this reduction in the number of the assistants on September 1st, 1897, but for the gifts generously made during the past year by several friends of the institution who have realized its pressing needs. These contributions, for which, on behalf of the Herbarium staff, the Curator here makes grateful acknowledgment, have been as follows: from an anonymous friend, the sum of \$5,000, of which \$2,000 was, according to the wish of the donor, added to the permanent endowment of the Herbarium and \$3,000 applied to present needs; also from Mr. E. S. Dixwell, \$100; from the Rev. Haslett McKim, \$100; from Mr. J. D. Williams, \$100; and from Mr. W. M. Canby, \$10; all four being gifts for present use.

In June, 1897, a second part of the first volume of the Synoptical Flora was published, including twenty-eight families of polypetalous plants. In this part appears the last portion of Dr. Gray's hitherto unpublished work. Another part of the Synoptical Flora, already in preparation, will treat the large and difficult family of the *Leguminosæ*.

In addition to the work of the Herbarium staff, indicated in the following list of publications, Mr. Fernald has completed a critical revision of the difficult Genus *Pectis* and Mr. Greenman has finished the identification of Mr. Robert Combs's large collection of Cuban plants, of which several new and noteworthy species were published in the Transactions of the St. Louis Academy.

The publications of the Herbarium during the year have been :

Notes on two species of *Brassica*, by B. L. Robinson, Botanical Gazette, xxii, 252-253.

Contributions from the Gray Herbarium, n. s., No. x, by B. L. Robinson and J. M. Greenman, Proc. Am. Acad. xxxii, No. 1, including I. Revision of the genus *Tridax*; II. Synopsis of the Mexican and Central American species of the genus *Mikania*; III. Revision of the genus *Zinnia*; IV. Revision of the Mexican and Central American species of the genus *Calea*; V. A provisional key to the species of *Porophyllum* ranging north of the Isthmus of Panama; VI. Description of new and little known phanerogams, chiefly from Oaxaca.

Aster longifolius, Lam., by M. L. Fernald, Garden and Forest, ix, 504, f. 73.

Aster tardiflorus, L., by M. L. Fernald, l. c. x, 14, f. 4.

Aster junceus, Alt., by M. L. Fernald, l. c. x, 44, f. 7.

Second Supplement to the Portland Catalogue of Maine Plants, by M. L. Fernald, Proc. Portland Soc. Nat. Hist. ii, 123-137.

Synoptical Flora of North America, vol. i, fasc. 2, including the polypetalous families from the *Caryophyllaceæ* to the *Polygalaceæ*, by A. Gray, continued and edited by B. L. Robinson with the collaboration of W. Trelease, J. M. Coulter, and L. H. Bailey.

Contributions from the Gray Herbarium, n. s., No. xi. by J. M. Greenman, Proc. Am. Acad. xxxii, No. 16, including I. Revision of the Mexican and Central American species of *Houstonia*; II. Key to the species of *Liabum*; III. Descriptions of new and little known plants from Mexico.

An undescribed *Antennaria* from New England, by M. L. Fernald, Garden and Forest, x, 284.

B. L. ROBINSON, *Curator*.

NOVEMBER 11, 1897.

THE BOTANIC GARDEN.

TO THE PRESIDENT OF THE UNIVERSITY : —

SIR : — As Director of the Botanic Garden, I have the honor of presenting the following report for the academic year 1896-97. As will be seen from the annexed communication, the weather has been, on the whole, favorable for our work out of doors, and hence we have been able to carry out in most particulars our plans for the further development of the establishment.

Mr. Cameron, Head Gardener, has submitted the accompanying report : —

"During the winter the weather was not exceptionally cold, but we had to consume about the usual quantity of coal, to maintain the temperature required in our greenhouses. In the spring, the weather lasted cold further into the season than in recent years, and, therefore, fires had to be kept up for a longer time. Very few of our perennials suffered from the winter. In the summer, there was an unusual quantity of rain, which diminished our draft on the supply of water from the City. Our perennials have not been in better condition for many years than they were at the close of the autumn. The number of visitors to the Garden increases from spring to early summer, but, during the hot weather in summer, falls below what we could wish. In the autumn, the Garden is again frequented, largely by students from the University and by pupils from the public schools."

It is well known that the chief difficulty in making any Botanic Garden constantly serviceable to visitors is the displacement of labels, even under the exercise of great care. After much deliberation, I decided to invite the co-operation of Mr. Fernald, a very competent authority, and a member of the Herbarium staff, in an attempt to rectify errors and secure greater accuracy throughout. Dr. Robinson, at the head of the Herbarium, kindly assented to this proposition, and arrangements satisfactory to all were soon completed. Mr. Fernald has been given the position of Nomenclator to the Botanic Garden, and has entered on his duties with energy and a good promise of success. His preliminary report is here annexed.

"In accordance with your directions, I have devoted a part of the time, during the summer and fall, to looking over the plants in the Garden, with a view to correcting errors in the labels. I began with the Polypetalae, and carried on the examination through the Compositae. The Compositae, so far as investigated, were found to be in remarkably good condition, only a few labels requiring change of any kind. Errors in labels originate chiefly (first) from the receipt of seeds and plants incorrectly named by the senders, and (secondly) by a process of natural substitution, in which a vigorous plant quickly crowds out the species next to it, and grows in its stead, as if it had been put there originally. A conservative estimate places the total number of perennials cultivated out of doors at 3,500 species, exclusive of interesting varieties, and in the greenhouses at 2,000. The species raised annually from seed carry the number to over 7,000. By next spring, the greater part of this large number will have been critically determined."

The late Professor F. D. Allen gave valuable assistance in the selection of species to illustrate the herbaceous plants spoken of by Virgil. The plat was well filled, and gave much pleasure to many visitors. It was impossible, of course, for us to transfer to this plat any of the trees which are alluded to in the Virgilian writings, but even without them the section has possessed considerable interest.

The formal arrangement of species in the natural families and genera does not attract the attention of casual visitors, and therefore it has been thought wise to continue the experiment of exhibiting a few at least of the species in some of their other relations.

Accessions from gift and by exchange have been rather beyond the average for a few years past. Our greenhouses have been enriched by a choice collection of Orchids and other plants possessing scientific interest, the gift of Mrs. F. L. Ames.

The dilapidated condition of two of our greenhouses again brings up the question of the reconstruction of the greater part of the range. There is no economy in repairs of a make-shift character; but, with our scanty income, it is not clear that the present wretched buildings in the rear, can be now replaced. For such rebuilding there would be required a draft on our invested funds too large to be contemplated without anxiety. Therefore it has been decided to patch up the two structures for the present.

At the suggestion of the Curator of the Herbarium, the Committee in charge of the appointment of the Overseers' Committees has been requested to divide into two groups the single Committee hitherto

visiting the Garden and Herbarium. The Herbarium is situated in the Botanic Garden, and sustains, as it always has done, very pleasant relations to it; but its funds and management are entirely separate, and it seems best that this fact should appear plainly in every way. Furthermore, it is thought that the Herbarium in its appeal to the public for necessary funds will be less hampered in any steps it may take, if it has a Committee of its own.

The Laboratories have not undergone any important change during the year. More of the work in Physiological Botany has been transferred to the rooms at the Garden, with manifest advantage to all. Regarded from one point of view, such division of our forces and appliances may appear unwise, but the results have shown this course to be the best at present.

The classes in all the electives have been about as large as in previous years.

Mr. Herbert Lyon Jones, who has served the University faithfully for five years as Assistant in Botany and more lately as Instructor, resigned at the close of the year to accept the professorship of botany at Oberlin College. His position has been taken by Mr. Olive, who has had considerable experience in botanical instruction.

In the Botanical Museum, two important changes will be noted: first the completion of cases for the installation of specimens illustrating Cryptogamic Botany, in the ample hall on the lower floor. Professor Farlow, who secured the money for this important addition to our equipment, has superintended the construction of the cases and will soon place the specimens in them. Secondly, the cases for the exhibition of the rarer commercial plants are now ready for use. Professor W. P. Wilson of the Commercial Museums in Philadelphia has placed at our disposal a large amount of very costly material which will serve as the basis for investigation and illustration. It seems likely that the Botanical Museum will have all of its permanent illustrations in place within two years, and everything properly and distinctly labelled. But the accumulation and distribution of material for investigation and instruction, will, we hope, go on indefinitely without any lessening of activity.

Attention must again be called to the desirability of adequately endowing (1) the Herbarium, which is one of the most important parts of the botanical establishment, and (2) the Botanic Garden and Museum, by which the establishment is kept in touch with the public.

Generous gifts from friends of the Garden have enabled us hitherto to develop the different parts symmetrically although rather slowly,

but we hope the time will soon come, when by a sufficient income derived from invested funds all elements of uncertainty will be removed.

The Director has again to thank all the members of the Overseers' Committee for their generous and wise support of his plans during the year.

GEORGE LINCOLN GOODALE, *Director*.

THE ARNOLD ARBORETUM.

TO THE PRESIDENT OF THE UNIVERSITY: —

SIR, — I have the honor to submit the following report on the progress and condition of the Arnold Arboretum during the year ending July 31st, 1897: —

Two popular courses in dendrology have been given, principally to teachers, by Mr. J. G. Jack, with an average attendance of thirty-one at the autumn lectures and forty at the spring lectures.

Want of money has stopped during the year all work for the improvement and extension of the Arboretum, and little has been done beyond necessary maintenance and the thinning of overcrowded woods and plantations. It is impossible to maintain the Arboretum, which is now one of the largest scientific gardens in the world, on a present income of about \$6,500 which is steadily decreasing; and it is evident that if it is to do the scientific work for which it was established and is now equipped, and to broaden its influence in popular education, the Arboretum will require a much larger income than that now derived from the James Arnold fund. The income of \$1,000,000 is needed to support the Arboretum, and develop its usefulness by research, exploration, and publication.

At the end of the year the trustees of the Massachusetts Society for the Promotion of Agriculture signified their appreciation of the value of the Arboretum to the State of Massachusetts by devoting to its use the sum of \$2,500 annually for the next five years. Miss Abbie A. Bradley, in memory of her father William L. Bradley, about the same time established a University fund of \$20,000 on condition that its income should be expended at the Arboretum in increasing the knowledge of trees. These are important gifts, significant of a growing interest in the Arboretum and its work in this community. They still leave it, however, inadequately provided with money for the most necessary current expenses.

During the year the Park Commissioners of the City of Boston, under the provisions of their contract with the University, have defined and protected the entire eastern boundary of the Arboretum with a substantial granite wall. A large amount of work on the roads in the Peter's Hill extension of the Arboretum has already been done by the City of Boston, and it is now expected that they will be opened to the public before the end of 1898.

The interchange of plants and seeds with other horticultural establishments has been continued during the year. There have been 8682 plants (including grafts and cuttings) and 759 packets of seeds distributed as follows: To the United States and Canada 8657 plants and 814 packets of seeds; to Great Britain 118 packets of seeds; to the continent of Europe 25 plants and 228 packets of seeds; to Australia 2 packets of seeds; to Japan 97 packets of seeds. There have been received during the year 1726 plants (including cuttings and grafts) and 820 packets of seeds.

The growth of the herbarium during the year has been the largest in its history, 8425 sheets of dried plants having been inserted. Among the important additions are 200 specimens of North American plants from the National Herbarium, 1015 Central China and Formosa plants acquired by purchase from Dr. Augustine Henry, Pringle's Mexican plants, 613 sheets presented by the Botanic Garden at Calcutta, and 271 sheets collected by the Director in the west, where he passed the summer of 1895-96 as Chairman of a Commission appointed by the National Academy of Sciences to prepare a scheme for the protection and improvement of the forests on the public domain. 616 duplicate specimens have been distributed from the herbarium.

The library has received by gift 260 bound volumes, including 160 volumes of German forestry periodicals presented by Dr. C. A. Schenck of Biltmore, North Carolina, and 270 pamphlets.

During the year the tenth volume of *The Silva of North America*, with forty plates, has been published, and the eleventh volume has been passed through the press. Fifty-two numbers of *Garden and Forest* have been published during the year.

C. S. SARGENT, *Director*.

THE CHEMICAL LABORATORY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—In addition to the instruction given in the previous year a half course in Elementary Organic Chemistry (Chemistry 2) was offered for the first time. This course was intended to serve as an introduction to the more extended course upon the same subject (Chemistry 5), and at the same time to meet the needs of students who wished a general knowledge of Organic Chemistry, but who could not devote to the subject the time required for a more detailed study. Dr. Torrey took charge of the course; the instruction was given by lectures, and it was thought best to make no provision for laboratory work; the large number of men (62) who elected the course fully justified its establishment. The laboratory instruction in Quantitative Analysis (Chemistry 4) was given by Mr. G. P. Baxter, while Mr. J. P. Sylvester took charge of the laboratory work in Qualitative Analysis (Chemistry 3).

The number of students in the various laboratory courses during the year and in June, 1896, was as follows:—

	October, 1896.	January 1st, 1897.	June 1st, 1897.	June 1st, 1898.
Chemistry B	74	71	66	78
Chemistry 1	314	302	272	268
Chemistry 3	106	102	98	98
Chemistry 4	82	29	27	24
Chemistry 5	17	16	14	18
Chemistry 6	4	4	4	10
Chemistry 9	11	11	..	..
Chemistry 10 . . . . .	..	..	9	9
Chemistry 20a	8	8	8	1
Chemistry 20b	4	4	4	5
Chemistry 20c	4	4	4	4
Chemistry 20d	1	1	1	1
Special	8	8	8	..
Total	578	555	510	511

While the whole number of students in the laboratory was substantially the same as in the previous year, the classes in Quantitative Analysis (Chemistry 4) and Elementary Chemistry (Chemistry 1) were somewhat larger. Every desk in the quantitative laboratory,

which had been refitted and enlarged during the summer, was occupied, and but few places which could be assigned to students in Elementary Chemistry were left vacant.

At the opening of each academic year many students have enrolled themselves in the several laboratory courses who have not again appeared to take possession of the desks assigned to them. Since this practice caused us serious inconvenience, it was thought best to require of each student a written application for a desk in addition to his formal enrollment; this application carried with it an agreement to pay in any case a portion of the laboratory fee for the year. In order to enable those students whose plans were definite to secure the necessary facilities for work, notice was given in May that desks could then be engaged for the ensuing year, and many places were thus taken in advance.

The scientific work of the laboratory was carried on actively throughout the year. The following work was done under the direction of Professor Jackson: Mr. H. A. Torrey finished the study of the oxide of dichloromethoxyquinonedibenzoylmethylacetal, and showed that it belonged to a new class of substances; Mr. F. B. Gallivan studied the 3, 4, 5 tribromaniline and some related bromine derivatives of benzol; Dr. W. F. Boos prepared a colored compound by the action of sodic ethylate upon trinitranisol or picryl chloride, the fourth of its class yet analysed, and threw some light on its constitution; Mr. F. H. Gazzolo studied derivatives of trichlorbenzol, especially the mixed halogen compounds and trichlorbromdinitrobenzol; Mr. R. W. Fuller prepared some new derivatives of phenylurethan, and Mr. P. M. Wheeler continued the study of the cobaltocobalticyanic acid.

Professor Richards continued the study of the temperature coefficient of the calomel electrode under varying conditions. He undertook with Mr. G. P. Baxter an investigation upon the atomic weight of cobalt, and began with Mr. A. S. Cushman a determination of the atomic weight of nickel. Under his direction Mr. R. J. Forsythe studied the action of ammonia upon cupriammonium bromide; Mr. B. S. Merigold investigated certain compounds of cupriammonium; and Mr. E. Collins began a series of determinations, which had as their aim the absolutely quantitative verification of Faraday's law. Professor Richards also made with Professor Trowbridge in the Jefferson Physical Laboratory an investigation upon the multiple spectra of argon and other gases; at the same time various phenomena connected with the oscillatory discharge and currents of great strength were studied.

Dr. Torrey continued with Mr. O. F. Black the study of nitromalonic aldehyde and allied bodies.

The following work was done under the direction of Professor Hill: Mr. O. A. Soch investigated a number of bodies belonging to the aromatic series which were made by the action of nitromalonic aldehyde upon ketones and ketone acids; Mr. J. P. Sylvester continued the study of certain sulphonic acids of the furfuran group; Mr. W. B. Holmes made a study of certain reactions of phthalaldehydic acid.

The following papers were published during the year: —

1. On certain derivatives of Trichlorodinitrobenzol. By C. LORING JACKSON and W. R. LAMAR. *Am. Chem. Journ.* xviii, 664.
2. On Parabromodimetanitrotoluol and some of its derivatives. By C. LORING JACKSON and MARTIN H. ITTNER. *Am. Chem. Journ.* xix, 1.
3. On the colored compounds obtained from Sodio Ethylate and certain Aromatic Nitro Compounds. By C. LORING JACKSON and MARTIN H. ITTNER. *Am. Chem. Journ.* xix, 199.
4. Ueber das Oxyd des Dichlordimethoxybenzoldibenzoats. By C. LORING JACKSON and H. A. TORREY. *Ber. der deutsch. chem. Gesellsch.* xxx, 527.
5. On Hydrocobaltocobaltcyanic Acid and its salts. By C. LORING JACKSON and A. M. COMEY. *Am. Chem. Journ.* xix, 271.
6. On the action of Ammonia upon Cupriammonium Bromide. By T. W. RICHARDS and R. J. FORSYTHE. *Proc. Am. Acad.* xxxii, 239.
7. On the temperature coefficient of the Calomel Electrode with several different supernatant electrolytes. By T. W. RICHARDS. *Proc. Am. Acad.* xxxiii, 1.
8. Note on the rate of dehydration of crystallized salts. By T. W. RICHARDS. *Proc. Am. Acad.* xxxiii, 21.
9. On the 3, 4, 5 Tribromaniline and some derivatives of unsymmetrical Tribrombenzol. By C. LORING JACKSON and F. B. GALLIVAN. *Proc. Am. Acad.* xxxiii, 45.
10. On the Oximes of Mucophenoxychloric and Mucophenoxybromic Acids. By J. A. WIDTSOE. Introduction by H. B. HILL. *Am. Chem. Journ.* xix, 627.
11. On the action of aluminic chloride upon Mucochloryl Chloride, Mucobromyl Bromide and the corresponding acids. By F. L. DONLAP. Introduction by H. B. HILL. *Am. Chem. Journ.* xix, 641.
12. On certain derivatives of Brommaleic and Chlormaleic Acid-aldehydes. By H. B. HILL and E. T. ALLEN. *Am. Chem. Journ.* xix, 650.
13. On the absorption of Oxygen by Tetrabromfurfuran. By H. A. TORREY. *Am. Chem. Journ.* xix, 668.

Professor Richards also prepared the Course of Experiments published in "The Requirements in Chemistry for entrance to Harvard College and the Lawrence Scientific School."

During the first few weeks of the year a fire-proof vault was built just outside the cellar walls, and the greater part of our stock of inflammable material was transferred to it. An old elevator shaft, which seemed to be a source of danger to the building, was torn out; the elevator had been but little used for many years, and its place is fully supplied by the larger elevator which was put in last year. Much needed improvements were also made in the drainage of the organic laboratory.

HENRY B. HILL, *Director.*

THE JEFFERSON PHYSICAL LABORATORY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—The mechanical equipment of the laboratory has been increased by the purchase of the most improved modern machine lathe; and a skilful carpenter has been employed during the entire year in arranging the details in various rooms in order to facilitate teaching and investigation.

The janitors have become skilful plumbers and steam fitters, and are also practical electricians in the subject of wiring and the care of dynamos and motors.

During the year meetings of the Professors and Assistants and graduate students have been frequently held for the purpose of discussing recent scientific papers and topics connected with scientific investigations. These meetings, called colloquiums, have been remarkably well attended, and they have evidently awakened enthusiasm; for the graduate students, of their own volition, have organized an additional colloquium, at the meetings of which, classical researches in physics, which can best serve as models of the most refined scientific methods, are explained and discussed.

The department has been unable to fill the demand for teachers of physics, and for graduates who have the requisite knowledge to make their services of value in practical applications of electricity; for the graduate students who completed their studies in the department during 1896-97 had already secured positions.

A part of the year was devoted by Professor B. O. Peirce and Mr. Durward to an investigation of the dependence of the temperature coefficients of such seasoned magnets as are used in measuring the intensities of magnetic fields, upon the dimensions of the magnets and upon the temperature itself. Mr. Durward tested several hundred magnets of tool steel, which were made in the shop of the laboratory, and artificially seasoned. Professor Peirce tested also a large number of similar magnets made of self-hardening steel. The results of this work will probably be ready for publication in a few weeks.

Mr. H. H. Brown began last year, under the supervision of Professor Peirce, an investigation of the "relaxation time" of conductors, and this he is carrying on with good prospects of success. He has already constructed apparatus which enables him to interrupt an electrical current for known time intervals as short

as a two hundred thousandth part of a second, and it is thought that he will be able eventually to lower this limit materially.

Much of Professor Peirce's leisure time for several years has been spent in attempts to measure with some accuracy the thermal conductivities of such poor conductors as glass and different kinds of rock. During the last summer, however, a large piece of apparatus for this work was constructed in the laboratory, which promises to be entirely satisfactory. It was first used in determining the conductivities of six slabs of rock, belonging to Dr. Alexander Agassiz, which had been cut in one of the shafts of the Calumet and Hecla Mine, where the temperature gradient is less than that at any other place where temperature determinations have been made at different depths.

Professor Hall gave much time during the year 1896-97 to a revision of the Descriptive List of Elementary Exercises in Physics, which is issued by the University for the use of preparatory schools. He supervised the work of two students in original research.

One of these students, Mr. O. R. King, was the holder of an English "Exhibition Scholarship," and came to Harvard from Montreal, where he had been working at McGill University under Professor Callender. He brought from Professor Callender a general plan for the determination of the "Thomson effect," a thermo-electric phenomenon, in absolute measure; but many details, some of vital importance, remained to be devised. Mr. King pursued his very difficult task with extraordinary energy and with such success that he attained the somewhat unusual honor of appointment to the Exhibition Scholarship for a third year. An account of the method which he used and of the results which he obtained, will soon be published.

Mr. C. H. Ayres of the class of 1898, working under Professor Hall's direction, measured the thermal conductivity of cast-iron by a method devised by Professor Hall, and already described in print. The investigation was laborious, and to complete it Mr. Ayres found it necessary to remain in Cambridge during many weeks of the summer vacation. His zeal was rewarded by final success, and an account of the work will soon be published.

Professor Sabine has directed the work of Mr. Harold Edwards, a graduate student, upon the investigation of high temperatures by means of an air thermometer. Mr. Edwards has already spent two years upon this difficult subject. Mr. Theodore Lyman and Mr. E. H. Colpitts, Assistants in the laboratory, are engaged upon the study of very short waves of light under the supervision also of Professor Sabine.

The scientific work of the Director has been largely directed to the study of the subject of periodic currents of electricity. In the course of his work he has discovered that the discharge in air of a large battery or accumulator is oscillatory. He believes, also, that the study of electrical discharges through gases shows that the spectrum of the atmosphere of the sun, and the spectra of the stars, are due to electromagnetic conditions and not to a high continuous state of temperature. The equipment of the laboratory for the study of the Röntgen Rays is very extended. Electromotive forces, varying from one volt to over a million, can be obtained. One form of apparatus will give electrical discharges four feet in length. The Director believes that no laboratory has such an opportunity to study such powerful effects, and a partial study of these discharges has already shown that previous estimates of high electromotive force are very erroneous. A study of the effect of the so called X Rays in producing Phosphorence, shows that this effect is due in large part to an electrification, and so far the experiments support the view that the X Rays are streams of electrified particles. The activity of these rays in producing phosphorescent light is so great that a diamond excited by them to a bright phosphorescent glow, will indicate the locality of the source of the X Rays even if this source be completely hidden from view.

The following papers have been published : —

The Spectra of Argon. JOHN TROWBRIDGE and T. W. RICHARDS. *Am. Journ. of Science*, 1897.

Multiple Spectra of Gas. JOHN TROWBRIDGE and T. W. RICHARDS. *Am. Journ. of Science*, 1897.

The Temperature and Ohmic Resistance of Gases. JOHN TROWBRIDGE and T. W. RICHARDS. *Am. Journ. of Science*, 1897.

The Effect of Great Current Strength on the Conductivity of Electrolytes. T. W. RICHARDS and JOHN TROWBRIDGE. *Am. Journ. of Science*, 1897.

The Energy Conditions necessary to produce the Röntgen Rays. JOHN TROWBRIDGE. *Proc. Am. Acad. of Arts and Sciences*, 1897.

The Electrical Conductivity of the Ether. JOHN TROWBRIDGE. *Phil. Mag.*, 1897.

Electrical Discharges in Air. JOHN TROWBRIDGE. *Am. Journ. of Sciences*, 1897.

The following paper has been finished and will shortly be published : —

Surface travel in Electrolytes. W. E. FISKE and W. D. COLLINS.

JOHN TROWBRIDGE, *Director*.

THE OBSERVATORY.

TO THE PRESIDENT OF THE UNIVERSITY : —

SIR, — A comparison of other astronomical observatories with that of Harvard College, shows that our strongest feature is the large endowment for current expenses. By this means a large number of assistants—twenty-one men and nineteen women—are employed, and extensive investigations are undertaken and carried to completion. On the other hand, as regards permanent plant—buildings and instruments—we are far behind not only observatories of the first rank, but even those of the second class. The photographic plates are excellently housed in a modern brick building, in which however economy was secured by a sacrifice of architectural effect. The main building of the Observatory is of wood and more than fifty years old, the other buildings with one exception are also of wood, and all are liable to destruction by fire, together with the instruments, manuscripts, and books contained in them. While a large telescope is greatly to be desired for the Arequipa Station, the erection of such an instrument at Cambridge is not to be recommended. A new mounting for the 15-inch Equatorial was considered necessary by many persons more than twenty years ago; but it has not yet been obtained. In modern astronomical research large expenditures are often required for instruments which cannot easily be paid for from income, unless other portions of the work of the Observatory are greatly curtailed. Patrons of the Observatory desiring to have their gifts used in this way are requested to distinctly specify it, since if such use be permissive only, as in the case of the Boyden Fund, but little of the principal is likely to be used. Large expenditures to be made from income only are generally postponed for many years, if not indefinitely. The need of modern buildings is most likely to be supplied by gifts or bequests from persons whose names should be attached to them. For instance, a library building in which the clerical work of the institution could be performed is greatly needed. A modern machine shop to replace our present workshop would form an excellent memorial of one who had been interested in the application of the mechanic arts to scientific uses.

OBSERVATORY INSTRUMENTS.

East Equatorial. — The observations with this instrument have been made by Mr. O. C. Wendell and have been of the same general character as in previous years. Over twenty-three thousand photometric light comparisons have been made, largely with the new polarizing photometer described in the annual report for 1895. With this instrument 1856 comparisons were made to determine the form of light curve and length of period of the Algol variable, W Delphini, discovered at this observatory, 3296 of U Cephei, 2592 of S Cancri, 1584 of S Cephei, 560 of S S Cygni, and 288 of U Camelopardali. The observations of S Cephei were made as part of a scheme to determine the effect of color on measures made by different observers and by different methods. In addition to the above, 1031 comparisons have been made of α Ceti, and 2622 of the relative brightness of the components of double stars with a second photometer adapted to the comparison of stars too near together to be measured with the first instrument. Besides the above, several other variables have been photometrically observed at regular intervals. Iapetus, the outer satellite of Saturn, was measured on 24 nights to determine its variation in light, and Titan on 3 nights. The respective numbers of comparisons are 960 and 96. The photometric measurements of Jupiter's satellites while undergoing eclipse have been continued. 28 eclipses have been observed, making the total number 627. The systematic observation of variable stars of long period throughout all their changes and the reduction of the results to the scale of the meridian photometer have been continued. About 250 estimates of variables have been made by the method of Argelander, generally when the stars are too faint to be observed with smaller instruments. 882 estimates of faint comparison stars have also been made.

Similar observations of variables and comparison stars have been made with the West Equatorial. With it 766 estimates of variables have been made by Mr. Reed and 735 by Miss Cannon. Mr. Reed has also made 657 estimates of comparison stars for variables, and Mr. Waite has recently undertaken a series of observations of S S Cygni and S Cephei. About 2100 estimates of variables have been made by Mr. F. E. Seagrave of Providence and communicated to this observatory. On September 27, Mr. Seagrave detected a small increase in brightness of S S Cygni and immediately telegraphed it to this observatory. As a result, a large number of observations were secured here by different observers during the rapid increase in light of this star. A series of photometric observations of β Lyrae

with a photometer mounted as a small horizontal telescope, has been made by Mr. E. R. Cram, principally during the current year. The total number of comparisons is 2304. In observing variables, the same sequences of comparison stars are used by all the observers. The brighter stars have been measured with the meridian photometer and 5976 comparisons have been made of the stars between the tenth and fourteenth magnitude with the new polarizing photometer attached to the East Equatorial. The observations of seventeen variables north of $+50^\circ$ are continued and observations of about eighty other variables are also being made. The coöperation of other astronomers is invited in this work, especially in following the variables when too faint for observation with our 15-inch telescope. Charts of the regions and lists of comparison stars with their photometric magnitudes, will be furnished to any astronomers who desire to take part in this work.

Meridian Circle.—The reduction of the observations made with the meridian circle, by Professor William A. Rogers, continues under his supervision. The last volume of his zone observations is now completed by the publication of Volume XXXVI. Considerable progress has also been made in the reduction of the observations of the fundamental stars which were obtained during the years 1880 to 1888 inclusive.

The revision of the southern zone, between the declinations $-9^\circ 50'$ and $-14^\circ 10'$, by additional observations of stars the previous observations of which were insufficient or discordant, has been continued during the year. Since, after the constants of a zone have been determined, the reduction of additional stars included in it delays the work comparatively little, many stars were observed a third time during this revision, although the two previous observations were sufficiently accordant. The number of dates on which observations were obtained was 70; the total number of observations was 2738, of which 436 were of fundamental stars, 144 of circumpolar stars, 2139 of zone stars, and 19 of stars incidentally observed. Very little remains to be done in the work of revision. The mean places of the stars observed previous to December 30, 1895, have been obtained, and numerous errors of computation, brought to view by a comparison of the results, have been corrected. The reduction of the observations made in 1896 has recently been begun.

Meridian Photometer.—Observations have been made by the Director with the meridian photometer on 152 nights. The total number of photometric settings is 100,052. This number, contrary

to expectation, is greater than that obtained in any previous year. The next largest number, 91,608, was obtained last year. The observations of all the stars of the magnitude 7.5 and brighter, and north of -40° , are now nearly completed. A few stars escaped observation last July owing to the unusually cloudy weather. It is expected that these stars will be observed during the present year and that the instrument will be again sent to Arequipa to repeat the measurement of the light of the brighter southern stars discussed in Volume XXXIV of our Annals. Besides these, all stars south of -40° and of the magnitude 7.5 or brighter will be observed, thus completing this work from pole to pole. Light curves of several variable stars of short period have been determined this year. Among others the light of δ Cephei was observed, 348 measures being made on 29 nights. From these observations a smooth light curve was derived of the same form as that found by other observers, but giving the actual variations in light on an absolute, and not on an arbitrary, scale. The rapidity of the work of the meridian photometer is illustrated by the observations of this star, since the entire time required was only about four minutes each evening or about two hours in all. Numerous observations were made of several stars of the Algol type, including 4140 measures of U Cephei on 27 nights, 1960 measures of R Canis Majoris on 15 nights, and 1456 measures of δ Cancri on 6 nights. Besides these, Uranus and Neptune were each observed on 5 nights, 560 measures of Ceres were made on 28 nights, 460 measures of Juno on 23 nights, and 600 measures of Vesta on 30 nights.

The researches planned for the meridian photometer are thus approaching completion, at least so far as the northern stars are concerned. Every few years, however, it will probably be advisable to reobserve certain stars, especially those that are visible to the naked eye, in order to provide additional standards of reference and to study the effects of secular variation, if any, in the brightness of the stars. During the last twenty years about 860,000 measures have been made with the meridian photometer, of about forty thousand stars. The probable error for each star is about one tenth of a magnitude. Standards of magnitudes are thus furnished in all parts of the sky, from the north to the south pole. Since other stars can be compared with these, by Argelander's method, there is now no difficulty in determining accurately the magnitude of any star brighter than the tenth magnitude on a uniform photometric scale. Experiments are now in progress to extend this scale to the fainter stars. The 12-inch telescope is mounted horizontally, and a mirror

placed in front of it serves to reflect into the field of view any star as it crosses the meridian. A photometer has been attached to this instrument with which it is hoped that stars as faint as the thirteenth magnitude can be compared accurately and rapidly with those already measured with the meridian photometer.

HENRY DRAPER MEMORIAL.

The number of photographs taken with the 8-inch Draper telescope is 3032. The number taken in Peru with the 8-inch Bache telescope is 3022. The examination of the spectra contained on these plates, by Mrs. Fleming, has led to the discovery of 17 new variable stars, 13 of which were detected from the presence of bright hydrogen lines in their spectra. 14 stars have been found whose spectra are of the fourth type, 8 stars of the first type in which the hydrogen line $H\beta$ is bright, 9 in which the spectrum is peculiar, and 2 gaseous nebulae. The hydrogen lines have been shown to be bright in the spectra of the known variables U Cassiopeiae, R Piscium, R Canis Minoris, X Hydrae, Y Librae, T Delphini, V Aquarii, and R Laceratae, while the spectrum of S Camelopardali has been found to be of the fourth type. Besides these, 11 variables have been found by Miss L. D. Wells and one by Miss E. F. Leland from the examination of photographic charts of the stars.

The number of photographs taken with the 11-inch Draper telescope is 1149. Numerous photographs have been obtained of Jupiter's satellites while undergoing eclipse, and of variable stars of the Algol type, especially W Delphini and U Cephei. The plate is moved automatically at intervals varying from 10 seconds to 5 minutes according to the brightness of the object, and a series of images is thus obtained from which the nature of the variation can be determined. An investigation has been made by Mr. King on the effects of differential refraction and flexure on the form of the photographic images. From this, it appears that by giving a certain rate to the driving clock, circular images may be obtained without following, even when the exposure is as long as an hour. Owing to atmospheric refraction an equatorial should never be driven on sidereal time. Even at the zenith the rate should be in this latitude about 24 seconds a day slow. Photographs have been obtained at suitable hour angles, using a mean time driving clock, the rate being wholly corrected by the refraction in right ascension. Experiments are now in progress with an apparatus by which it is hoped to introduce a flexure which will correct automatically for refraction and that thus circular images may be obtained without following. Owing to the large number of

photographs taken every clear evening, the work of development had become very laborious. An apparatus has accordingly been constructed and is now in regular use by which twelve plates are developed simultaneously.

BOYDEN DEPARTMENT.

The Arequipa Station has remained under the direction of Professor Bailey aided by Messrs. Clymer, Stewart, and Muniz. Professor Upton of Brown University has also spent a large part of the year there aiding in determining the longitude and in other portions of the work. Mr. Robert de C. Ward is now visiting the station, inspecting the various meteorological stations and rendering aid in other ways. The number of photographs taken with the 13-inch Boyden telescope is 845, mainly charts of clusters, charts for detection of parallax, and spectra of the brighter stars. The latter work has led to the discovery that the star A. G. C. 10534 is a spectroscopic binary having a period of $8^d 2^h 46^m$. The star β Lupi appears also to be a spectroscopic binary, but its period has not yet been determined. The spectrum of the star ζ Puppis was found from these plates to contain a second rhythmical series of lines due to hydrogen, resembling those already known and having an important relation to them. Theory indicated an additional line in the new series at wave length 5414. The existence of this line has been proved by taking isochromatic plates on which it appears. Similar lines are present in the spectrum of A. G. C. 9313. A visual examination of all stars south of declination -30° , in right ascension between 12^h and 20^h and in magnitude between 6.2 and 7.0 has been made to detect close or faint companions. A uranometry of the bright southern stars has been completed, each star having been compared by Argelander's method with adjacent stars slightly brighter and fainter than itself. Visual observations of the southern variables have been obtained every month as far as possible. Counts have been made of the number and distribution of stars in several clusters. The number of variables found in these objects is four hundred. Almost seven thousand estimates have been made of the brightness of the 120 variables contained in α Centauri and of the 85 variables in Messier 5. The periods and light curves of 32 variables in α Centauri have been determined. The uncertainty in the period is generally less than a minute. A transit photometer like that in use here for several years past has been erected at Arequipa, and 200 photographs have been taken with it. Photographs of all the bright stars from the north to the south pole are now obtained

when they cross the meridian on every clear evening at one or both of our stations.

The same meteorological stations have been maintained as last year: Mejia (elevation 100 feet), La Joya (4,150), Arequipa (8,060), Alto de los Huesos (13,300), Mt. Blanc Station on El Misti (15,600), El Misti (19,200), and Cuzco (11,000). Continuous observations were obtained at the summit of El Misti during the cloudy season by means of the new meteorograph. Thermographs and barographs of the usual form have also been kept running at this station when practicable. Additional room has been provided for the observers by enlarging the cottage, and new octagonal roofs have been added to the Bache and 5-inch telescope buildings. The latter was rendered necessary by the destruction of the former roof by a violent wind storm on June 6.

THE BRUCE PHOTOGRAPHIC TELESCOPE.

The completion of this instrument and its successful erection at Arequipa were announced in my last annual report. The advantages of a doublet for photographing the stars were recognized at this Observatory as early as 1883. In 1886 a plan was proposed to photograph the sky on a scale of one minute to a millimeter, each chart to cover a region five degrees square. This plan was recommended to the Astrophotographic Congress at its first meeting. Comparing a doublet of 24 inches with the 13-inch lenses actually adopted, it was shown that the doublet would cover six times as large a region as an ordinary lens, while, since its area was more than three times as great, the required time of exposure would be less than a third. One doublet would thus do the work of many ordinary telescopes. In fact, either hemisphere could easily be covered every year. The reduced time of exposure would greatly diminish the difficulties from changes in flexure and in differential refraction, while the great area covered by each plate would give abundant standard stars whose positions have been accurately determined. Whatever the distortion, it must all be radial, and therefore easily determined and corrected. Experience has shown that it is not difficult to obtain perfectly circular images with long exposure, also that very faint stars can be photographed, and that the distortion is not serious even at the corners of the plate. The liberal gift of Miss Bruce has permitted this form of instrument to be tried, and has shown that in practice it is capable of performing all that was claimed for it. Any interference with the carefully formed plans of the Astrophotographic Congress is most undesirable, and

no duplication of work is advisable. The plan of publishing a complete map of the sky with the Bruce telescope has therefore been abandoned, since it is believed that more useful work can be done with this instrument in other ways. Glass copies of our negatives, of any portion of the sky, will be furnished to astronomers who desire to study them. It is believed that most valuable work could be done by a careful study of particular regions by means of such photographs as, for instance, those of the Magellanic Clouds. An astronomer could thus, at little or no expense, be put in possession of material which he could himself prepare only by a large expenditure both of time and money. As subjects of investigation may be mentioned, positions of stars within two degrees of the south pole, distribution of stars of different magnitudes, detection of faint variable stars, absence of faint stars near large nebulae, linear distribution of stars, relative number of single and double stars, etc. The number of photographs taken with the Bruce telescope during the year is 662. A few of these have been taken with the prism. From an examination of two plates showing the spectra of stars in the large Magellanic Cloud, Mrs. Fleming has discovered six stars whose spectra are of the fifth type, seven of the first type in which the hydrogen lines are bright; also that the spectra of six known nebulae in that region are gaseous. These are the only fifth type stars so far from the Milky Way, and they furnish another clue to the constitution of the Magellanic Clouds.

BLUE HILL OBSERVATORY.

Routine meteorological observations and records were maintained by the same observers under the direction of Mr. Rotch. Measurements of the heights and movements of clouds were made by several methods during the international "cloud-year" ending April 30, 1897. Their form of publication is under consideration by a committee of which Mr. Rotch is a member. The exploration of the upper air with kites lifting self-recording instruments has been continued, and a grant from the Hodgkins Fund of the Smithsonian Institution enabled a steam-windlass and other appliances to be obtained. Automatic records were brought down from heights above Blue Hill of 8,740 feet on October 8, 1896, and 9,255 feet on September 19, 1897, which, at the respective dates, were the greatest altitudes that had been reached by kites. A description of the methods employed in this investigation, with a discussion of the observations from 1894 until the beginning of the year 1897, forms an appendix to the observations for 1896, in Volume XLII, Part I, of the *Annals*, now in course of publication.

MISCELLANEOUS.

Library. — The library of the Observatory has been increased during the year by the addition of 368 volumes and 1,509 pamphlets. The total number of volumes and pamphlets in the library of the Observatory on October 1, 1897, was 8,635 and 12,992 respectively. Especial efforts are being made to render the meteorological as well as the astronomical collections of publications as complete as possible.

As the station at Arequipa, Peru, will be maintained permanently, it is desirable, owing to its remoteness, that it should have a library of its own. Copies of astronomical and meteorological works sent there direct, or through this Observatory, will be gratefully received, and will prove of much value.

Telegraphic Announcements. — The distribution of telegraphic announcements of discovery has been continued as in past years. Astronomers are requested to continue to send to this Observatory announcements of their discoveries for transmission to the observatories of Europe and America.

Electrical Equipment. — Owing to the gradual accumulation of electrical appliances incidental to the growth of the Observatory, it has become necessary to concentrate under one comprehensive system the numerous independent equipments of former years. Such a system has been devised and is now in practical operation. It consists of a central switch-board from which are controlled the various circuits leading to all parts of the Observatory, and by the use of which it is possible to make almost any combination of connections for special purposes, without disturbing the permanent wiring. Besides the usual circuits for the operation and control of the telescopes, the arrangement includes circuits for operating electric clock-dials and auxiliary fire-alarms, and for the maintenance of communication by bell and telephone between nine different stations situated in the various buildings. By a recent extension of the system small incandescent lamps are provided at the telescopes for recording purposes and for the illumination of numerous circles and dials. Current is furnished by a battery of twenty-eight cells of chloride-accumulator which has been substituted for the old batteries of the gravity type. The accumulators are charged, at intervals of about three days, by connecting them with the Edison generator, which was presented to the Henry Draper Memorial by Mr. Edison. The generator is driven by an electric motor of five horse-power,

which receives its current from the wires of the Cambridge Electric Light Company. The arrangement works well, and effects a great saving in time and annoyance in the care of batteries and apparatus, incidentally providing power which can be utilized in the shop for operating light machinery. The storage battery has opened a new field for the application of electricity to astronomical instruments, on account of the low internal resistance of the cell and the consequent large current which can be supplied.

Publications. — Good progress has been made in filling the gaps in the published volumes of *Annals*. The first incomplete volume is XXIII, of which Part I, Discussion of Observations made with the Meridian Photometer during the years 1882–88, was published some years ago. Much work has been done on Part II, completing this volume, and it is hoped that it may be published during the present year. The next incomplete volume, XXVI, has been finished by the publication of Part II, Miscellaneous Investigations of the Henry Draper Memorial. Part I of Volume XXVIII, Spectra of Bright Stars, has been published, and Part II of the same volume, Spectra of Bright Southern Stars, continuing the work to the south pole, is in course of preparation. Volume XXX has been completed by the publication of Part IV, Discussion of the Cloud Observations made at the Blue Hill Meteorological Observatory. Volume XXXII, Part I, Photographic Investigations by Professor W. H. Pickering, was published in 1895; 46 pages of Part II of the same volume, relating to visual observations, are in type. 73 pages of Volume XXXIII, Miscellaneous Investigations, are in type. Volume XXXVI, the final volume of zone observations made with the meridian circle by Professor W. A. Rogers, has been completed and published. It will therefore be noticed that the first thirty-six volumes of the *Annals* are now complete, with the exceptions of Volumes XXIII, XXVIII, and XXXII, of which the first part has been published in each case, and Volume XXXIII, of which, as stated above, 73 pages are in type. Volume XL has been completed by the publication of Part V, Observations made at Blue Hill in 1895, with five and ten year summaries, and a discussion of the annual and diurnal periods. Volume XLI, Part IV, Observations of the New England Weather Service for 1895, has been published. This work, unfortunately, will not hereafter appear in our *Annals*, since the continuation of these observations is now published in the *Monthly Weather Review*. About 50 pages of Volume XLII, Part II, Observations made at Blue Hill in 1896, are in type.

Eight circulars have been issued this year in continuation of those described in my last report. The numbers, subjects, and dates are as follows: —

12. Stars having Peculiar Spectra. New Variable Stars in Crux and Cygnus. November 2, 1896.
13. Relative Motion of Stars in the Line of Sight. November 4, 1896.
14. A New Spectroscopic Binary in Puppis. November 17, 1896.
15. The Bruce Photographic Telescope. December 30, 1896.
16. The Spectrum of γ Puppis. January 12, 1897.
17. Stars having Peculiar Spectra. Distribution of Stars in Clusters. March 30, 1897.
18. Variable Star Clusters. Southern Double Stars. Spectrum of γ Puppis. July 29, 1897.
19. Large Magellanic Cloud. September 28, 1897.

These circulars prove very convenient as a means of bringing astronomical discoveries made here promptly to the notice of astronomers. The following minor publications have also appeared during the year: —

- Fifty-first Annual Report of the Director of the Astronomical Observatory of Harvard College. Cambridge, 1896.
- Alvan Graham Clark. By O. C. Wendell. *Astrophysical Journal*, vi, 136.
- The Algol Variable, W. Delphini. + 17° 4367. By E. C. Pickering. *Ibid.* iv, 320.
- Navigation in Fog. By E. C. Pickering. Cambridge, 1897.

EDWARD C. PICKERING, *Director*.

THE MUSEUM OF COMPARATIVE ZOÖLOGY.

TO THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE:—

During the past year the usual courses of instruction have been given at the Museum in the Natural History Laboratories. Those in Zoölogy were given by Professor Mark, and Doctors Davenport, Parker, and W. McM. Woodworth, assisted in the Laboratory work by Messrs. Henry R. Linville, John I. Hamaker, and J. H. Hathaway.

Professors Shaler and Davis, together with Instructors Robert Tracy Jackson, R. DeCoursey Ward, T. A. Jaggar, Jr., and J. B. Woodworth, gave courses of instruction in Geology, Palaeontology, Physical Geography, and Meteorology. The Assistants in these departments were Messrs. Vernon F. Marsters, J. E. Woodman, and George C. Curtis.

The courses in Petrography and in Mining Geology, and allied subjects, are now given in the Mineralogical Department. These courses are in charge of Professor Wolff and Professor H. L. Smyth.

The Newport Marine Laboratory has, as usual, been open to advanced students in Zoölogy. Eleven students spent a part of their time in the Laboratory collecting material for their special investigations, which they will continue and prepare for publication in Professor Mark's Laboratory at the Museum. I regret that hereafter it will be impracticable for me to open the Newport Laboratory to the students of the Zoölogical Department, as has been done for the past twenty years. I have during that time accumulated a large amount of material relating to the marine fauna of Narragansett Bay, which should be prepared for publication. The available room of the Laboratory will be required by the special assistants who will aid me in this work, so that some other arrangement must be made to provide the facilities formerly furnished at Newport.

The Museum will now have at its command, for the use of its Assistants or other persons, the two tables at the Laboratory of the United States Fish Commission at Wood's Hole, to which it is entitled as one of the subscribers to the fund to establish the Commission Laboratory at Wood's Hole. One of the Museum Assistants and one student were admitted this year by Commander Brice to the Laboratory of the United States Fish Commission. The income of

the Virginia Barret Gibbs Scholarship was assigned according to the terms of the gift.

Professor Faxon reports that he has completed the arrangement of the collection of recent Mollusca, undertaken in 1898. The collection of dried shells is now easily accessible, and in a state of permanent safety. It is contained in over 1,700 large standard wooden trays; and the bottles of the alcoholic collection, independently of the larger specimens contained in copper cans, fill about 100 trays. This of course does not include the Faunal or Systematic series of mounted specimens in the Exhibition Rooms.

Messrs. Henshaw, Garman, and Brewster report that the collections in their care are in excellent condition. Mr. Henshaw has devoted his time to the rearrangement of certain parts of our entomological collection, and to assisting those persons who have had occasion to consult the collection. He has also prepared for exhibition a collection of galls, which has been placed in the Botanical Section of the Museum.

The Exhibition Rooms have remained much as they were at the time of the last Report. A few specimens have here and there been intercalated to supply deficiencies, and poor specimens have been eliminated or better mounted.

Dr. Woodworth has been making some experiments with a view to improving the exhibition of alcoholic specimens. It is hoped to begin with the Synoptic and Atlantic Rooms, and substitute more artistically mounted alcoholic specimens for those now on exhibition.

To Professor Hyatt and to Mr. William Brewster the Museum is indebted for the care of their respective departments. Dr. R. T. Jackson has made excellent progress in the selection of the fossils intended for the Palaeozoic Exhibition Room.

Dr. Eastman has continued in charge of the Vertebrate Palaeontological Collection, which is now in excellent order; he has devoted his time principally to the study and increase of the collection of fossil fishes, and has made several excursions to interesting localities on behalf of our collection.

Dr. Mayer has spent the greater part of the last six months in collecting material for the new edition of the North American Acalephs. More than thirty new species of Jellyfishes were collected at the Tortugas. In the early spring he spent some time at Newport and at Nahant to obtain those species which disappear with the early summer. He also visited the coast of Maine to collect the more northern forms. It will require at least two years to collect the more common species along our Atlantic coast, and an off-shore

expedition from the Tortugas to Eastport will be needed, in addition to extended visits at other points of the Atlantic coast, before we can expect to bring together a fair representation of the Acalephan fauna of our Atlantic coast. Dr. Mayer has also revised the labels of the alcoholic collection of deep-sea corals, many of which had become faded.

Dr. Woodworth, who has also been engaged in the revision of our collection of worms, has undertaken to work up the Annelids of the Atlantic coast of the United States. The Museum is in possession of a large collection of colored drawings of species, made by Professor Agassiz and his assistants, extending from the coast of Massachusetts to Florida. Of many of the species no specimens are extant, and it is hoped that some use may now be made of this valuable systematic material, which has been awaiting publication for so many years. During the past summer Dr. Woodworth has spent his time at the Newport Laboratory collecting the species of Narragansett Bay.

Collections have been sent in exchange to Professor Orton and to the Smithsonian Institution.

Specimens have been sent for examination to Mr. P. F. Kendall, to Mr. Gamble, to Dr. Thiele, and to Dr. Montgomery, who has prepared a report on the Gordiacea of the Museum Collection, together with the results of his preliminary examination of other collections of the group accessible to him. His report will appear in one of the forthcoming Bulletins, and will be illustrated by 15 plates.

Among the principal collections we have received I may mention a collection of Devonian fish remains from Professor S. Calvin, State Geologist of Iowa; a collection of worms, kindly sent from Sydney by Dr. Collingwood; and a valuable invoice of South American fishes and reptiles, from Dr. Lataste. The large collection of Corals from the northern part of the Great Barrier Reef made for me by Professor H. A. Ward has safely arrived at the Museum. The fine collection was made under considerable difficulties by Professor Ward; but to his perseverance and enthusiasm we owe one of the best possible representations of the species of reef builders of the northeast coast of Australia. In due time the collection will be placed on exhibition in the Systematic Room of Polyps.

We have also received a valuable collection of North Atlantic Crustacea from Canon Norman.

The Museum is likewise indebted to Messrs. Dendy, Jameson, and Hallex, for valuable additions to our collection of Turbellaria, Platyhelminths, and Nemertean.

We have also received a valuable collection of mammals and birds from Borneo and the Celebes, presented to the Museum by Dr. W. H. Furness.

The additions to the Library by purchase, gift, and exchange have kept up with those of the preceding year. The Library now numbers, including the Whitney Library, over 81,000 volumes, and about 2,000 pamphlets which are not yet arranged for binding.

Excellent progress is making with several of the Reports on the "Albatross" Expedition of 1891 since the last Report. Mr. Westergren has been engaged upon the plates of Mr. Garman's Monograph of the Fishes. Professor Lütken reports that he has completed the examination of the Ophiurans. Professor H. B. Ward has also completed his Report on the Sipunculids, and Dr. Hansen that on the Isopods. The proofs of the Report on the Acalephs have been sent to Dr. Maas, and it is hoped that his Memoir will be issued shortly.

Of the "Blake" Reports, we have published the Memoir by Professors Milne-Edwards and Bouvier on the Galatheidæ (Vol. XIX. No. 12), and a Bulletin (Vol. XXX. No. 8), Supplementary Notes on Crustacea, by Professor Faxon.

The Monograph on the American Crinoidea Camerata by Wachsmuth and Springer, by far the most extensive publication we have yet undertaken, has been issued by the Museum as Volumes XX. and XXI. of the Memoirs, accompanied by an Atlas of 88 Plates. The Heliotype Printing Company of Boston deserves great credit for the thorough manner in which it fulfilled its contract for the delivery of the plates, and we are greatly indebted to Mr. Westergren for his endless care in the supervision of the presswork of the plates.

The Corporation has continued the allowance of \$400 made in previous years to aid in the publication of some of the Contributions from the Zoölogical Laboratory.

Of the Bulletins we published two numbers of the Geological Series relating to the Florida Reefs, by myself, Mr. L. S. Griswold, and Dr. E. O. Hovey (Vol. XXVIII. Nos. 2 and 3). Volume XXX. of the Bulletin has also been issued, containing four numbers of Contributions from the Zoölogical Laboratory, in charge of Professor Mark, and one number by Dr. Woodworth and myself on the Variations in the Genus *Eucopa*.

Among the papers which are ready for the press I may mention the report of my Visit to the Great Barrier Reef, and short papers by Dr. Woodworth on the Planarians, and by Dr. Mayer and myself on some Acalephs of the Barrier Reef.

A short Memoir on the Genus *Dactylometra*, by Dr. Mayer and myself, is also ready for the printer.

This publication will probably be delayed until my return from the Fiji Islands, where I have planned to pass the greater part of next winter in studying the coral reefs of that group. I shall be accompanied by Dr. Woodworth and Dr. Mayer as assistants. The steamer "Yaralla" has been chartered in Sydney for the expedition, and she is to meet us at Suva late in October. The outfit for the expedition has been shipped to Sydney to be placed on board the steamer we have chartered. In addition to the usual apparatus, for photographic purposes, for sounding and dredging, and for pelagic work, we take a diamond drill outfit, and hope to find a suitable locality for boring on the rim of one of the atolls of the Fijis. The boring machinery will be in charge of an expert sent by the Sullivan Machine Company, from whom this machinery was obtained. The Directors of the Bache Fund have made a large grant towards the expenses of this boring experiment.

I am also indebted to Professor Brandt of Kiel for superintending for me the construction of a deep-sea self-closing tow-net, such as was used in the "National" Expedition. Dr. Richard, of Paris, sent me a modified Giesbrecht net, such as was used by the Prince of Monaco on the "Princess Alice," and Dr. A. Dohrn kindly deputed Dr. Giesbrecht to send me one of the Giesbrecht nets from the Naples Station. These, together with the old and new styles of Tanner net, which we take with us, as well as a self-closing net adopted by Mr. Townsend of the "Albatross," which he was kind enough to have made for me, will give us the means of comparing these different styles of deep-sea tow-nets, and of testing their comparative efficiency under similar circumstances.

Thanks to the kind offices of the State Department at Washington, we carry letters to the Governor of the Fijis from the Foreign Office in London.

I have to thank specially Admiral Wharton, R. N., Hydrographer of the Admiralty, for his assistance and counsel in regard to our visit to the islands, and also Captain W. O. Moore, R. N., for his kindness in placing at my disposal his experience and the information he acquired while surveying the Fijis. I must also mention the late Sir John B. Thurston, Governor General of the Fijis, who from the first conception of the expedition took the deepest interest in our success. We shall greatly miss his advice, and the knowledge he had gathered during the long period of his administration in that part of the South Sea Islands.

Mr. Theodore Lyman, one of the most efficient and devoted friends of the Museum, died at Nahant on the 9th of September, 1897. Withdrawn since 1885, by reason of failing health, from any active share in the affairs of the Museum, he nevertheless was and must ever remain identified with its history. His absence, always deeply felt by his colleagues, made a blank in their ranks which his death only accentuates. Not only did they value him for his personal acquirements, and for his sympathy with the general interests of the Museum, but also for his genial character, which brought with it a cordial, cheering influence appreciated by all his co-workers. From his youth he was a favorite pupil of Professor Agassiz, and that relation, notwithstanding their difference of age, ripened into friendship with advancing years. He entered with zeal into all the plans of Professor Agassiz for the establishment of a Museum at Cambridge, and the creation of a school of Natural History at Harvard University. He was one of the original trustees of the Museum, and served as its Treasurer in addition to his work as Assistant in Zoölogy. After the Charter of the Museum was transferred to the Corporation of Harvard University, he became a member of the Museum Faculty, and acted as its Secretary. In all these official positions his devotion to the founder of the Museum, his business capacity, his common sense and sound judgment, were of great value in raising the institution to its present position. After the death of Professor Agassiz, Mr. Lyman continued his services to the Museum, until he became incapacitated for work by the disease which finally ended his life. His letter of resignation shows what it cost him to give up his scientific pursuits, and sever his connection with the institution to which he was so deeply attached. It signified also his full recognition of the ordeal he was called upon to face, and which he bore through years of suffering with invincible fortitude.

Mr. Lyman's scientific work was devoted to fisheries and to the study of Brittle Starfishes. As Fish Commissioner of Massachusetts he gave the State valuable service, and published a number of annual reports from 1866 to 1881. His zoölogical work began with short papers on ornithological subjects; he subsequently became interested in corals, and finally devoted himself specially to Ophiurans. The first Illustrated Catalogue of the Museum was from his pen, and this important monograph on Ophiurans was followed by numerous papers on the same subject, treating of new species of the group. He wrote the Report on the Ophiurans of the "Hassler" Expedition, of the "Challenger," and of the "Blake" which include by far the larger number of species of Ophiurans dredged by those deep-sea exploring expeditions.

Publications of the Museum during 1896-97:—

Of the Bulletin:—

Vol. XXVIII. (Geological Series, Vol. III.)

No. 2. The Elevated Reef of Florida. By A. Agassiz. With Notes on the Geology of Southern Florida. By L. S. Griswold. pp. 86. 26 Plates. October, 1896.

No. 3. Notes on the Artesian Well sunk at Key West, Florida, in 1895. Based on a Collection made for Alexander Agassiz. By E. O. Hovey. pp. 30. December, 1896.

[Vol. XXVIII. *will be continued.*]

Vol. XXX. (October, 1896—April, 1897.)

No. 1. The Early Development of *Asplanchna Herrickii* de Guerne; a Contribution to Developmental Mechanics. By H. S. Jennings. pp. 118. 10 Plates. October, 1896.

No. 2. Studies from the Newport Marine Laboratory. XL. Some Variations in the Genus *Eucopa*. By A. Agassiz and W. McM. Woodworth. pp. 32. 9 Plates. November, 1896.

No. 3. Reports on the Results of Dredging in the "Blake." XXXVII. Supplementary Notes on the Crustacea. By W. Faxon. pp. 16. 2 Plates. November, 1896.

No. 4. Contributions from the Zoölogical Laboratory. LXXIV. On the Color and Color-Patterns of Moths and Butterflies. By A. G. Mayer. pp. 90. 10 Plates. February, 1897.

No. 5. Contributions from the Zoölogical Laboratory. LXXV. The Mesenteries and Siphonoglyphs in *Metridium Marginatum* Milne-Edwards. By G. H. Parker. pp. 16. 1 Plate. March, 1897.

No. 6. Contributions from the Zoölogical Laboratory. LXXVI. Photomechanical Changes in the Retinal Pigment Cells of *Palæmonetes*, and their Relation to the Central Nervous System. By G. H. Parker. pp. 27. 1 Plate. April, 1897.

[Vol. XXX. *is complete.*]

Of the Memoirs:—

Vol. XIX. (July, 1893—May, 1897.)

No. 2. Reports on the Results of Dredging in the "Blake," 1877-1880. XXXV. Description des Crustacés de la Famille des Galathéidés recueillis pendant l'Expédition. Par A. Milne-Edwards et E. L. Bouvier. pp. 142. 12 Plates. May, 1897.

[Vol. XIX. *is complete.*]

Vols. XX., XXI. The North American Crinoidea Camerata. By Charles Wachsmuth and Frank Springer. 2 vols. pp. 837, and Atlas of 83 Plates. May, 1897.

ALEXANDER AGASSIZ, *Director.*

Cambridge, October 1, 1897.

THE PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—The thirty-first year of the existence of the Museum was marked by a radical change in its management, inasmuch as the Museum passed from the control of the Board of Trustees established by its founder, on October 6, 1866, to that of the University Corporation. This change was brought about by a petition of the Trustees to the Legislature for authority to make such arrangements with the Corporation of Harvard College as would place the property, held by them as Trustees, in the keeping of the Corporation; at the same time securing to the Museum, permanently, for the purposes for which they were given, all funds received from Mr. Peabody and other benefactors. This change has simplified the heretofore complicated conditions in the management of the Museum, as well as in the regulation of the instruction offered in Division XIV of the Faculty of Arts and Sciences—instruction to which the Museum is essential.

The union of the Museum with the University was accomplished by an Act of the Legislature, followed by an Agreement made between the Trustees and the Corporation, on the first day of January, 1897. Since that date, the Museum has been governed by a Faculty consisting of the President of the University, the Peabody Professor, and Messrs. Stephen Salisbury, Charles P. Bowditch, and Francis C. Lowell representing the Board of Trustees designated by Mr. Peabody. Of this Faculty, the President of the University and the Peabody Professor (or Curator of the Museum) are *ex officio* members. With these two exceptions, vacancies are to be filled through nomination of the Faculty, and election by the Corporation and Board of Overseers.

The objects for which the Museum was founded, and for which the successive trustees have so conscientiously and faithfully labored in the past, are thus secured on a stable foundation. The development of the Museum has now become the care of the University. Under these new conditions it is hardly possible that the graduates and patrons of the University will permit a department of such general interest, one so essential to the purposes of the University,

to struggle on with an inadequate endowment, and with insufficient accommodations for the treasures which are now the property and charge of the University.

The Museum has naturally outgrown its former limitations, and now contains many collections which, as a whole, can only be grouped under Anthropology, as the term is now generally applied and understood; while the instruction given in connection with these collections covers the whole field of this science. There are now connected with the courses of instruction in this Division, an Instructor in Anthropology and an Assistant in Anthropology, appointed by the Corporation. The courses are open to graduates and undergraduates, and are designated as follows: 1, General Anthropology; 2, Somatology; 20a, American Archaeology and Ethnology; 20b, Advanced Somatology. In these courses, during the present term, there are 6 Graduates, 1 fourth year Medical student, 5 Seniors, 2 Juniors, 1 Sophomore, and 1 Special Student, — 16. There are also at work in the Museum an acting assistant curator, a private student, and a director of an exploration. There are thus 19 men who are engaged in study or special research in various subjects included under the term anthropology; while the division of the University under which this work is carried on, and the Museum in which it is done, are limited in their designations to two subdivisions of the science. This is an instance where a natural growth makes a change of title essential, and it therefore seems proper that the Museum and Division XIV of the Faculty of Arts and Sciences should now be designated by the more comprehensive term, Anthropology.

Many additions have been made to the Museum during the past year, including gifts from friends and the collections made by two expeditions sent out by the Museum.

Thanks to the continued interest and personal efforts of Mr. Charles P. Bowditch, friends of the Museum provided the means for sending Mr. George Byron Gordon on another expedition to Honduras. Since it is undesirable to continue explorations at the Ruins of Copan, pending the settlement with the Government of Honduras concerning the right of exploration on that interesting site, Mr. Gordon renewed his researches on the banks of the Ulua river. As noticed in the last report, the materials found on the old village sites along this river are of singular interest, since they show a mixture of the art of Nicaragua and of Southern Mexico with that of parts of Guatemala and Honduras. Several pottery vessels, and parts of others, taken from these deposits on the

Ulna have been received from Dr. G. B. Abbott of Honduras. One of these vessels is of particular interest, as it is of a typical Oajaca type.

Mr. Gordon also made further exploration of the caves mentioned in the preceding report, without however finding any evidence of great antiquity in their occupation. The pottery found in the caves is of a different character from that found in the ruins of Copan, which seems to indicate that the caves were used by a different people.

While in Guatemala Mr. Gordon obtained by purchase a number of specimens which were found in the ruins of Quiché. In this lot are two large jars of a particularly interesting pattern unlike any heretofore in the Museum.

In connection with the researches in Central America and Yucatan attention is called to the series of quarto publications of the Museum, issued by aid of the friends who have furnished the money for the explorations to which these memoirs relate. The first of these illustrated Memoirs is a General Report on the Ruins of Copan, compiled by Mr. Gordon from the field notes of the several expeditions, including those under his personal charge. The second Memoir, issued in July last, is an account of the exploration of the Cave of Loltun in Yucatan, prepared from a report by Mr. Edward H. Thompson, the director of this expedition of the Museum. The third, which has just been distributed, is Mr. Thompson's report on the Chultunes of Labná. This is one of the series of memoirs which should be published, giving an account of the explorations by the Museum of the ruins of the ancient city of Labná in Yucatan. These explorations of 1888-91 were under the immediate direction of Mr. Thompson, who brought to light many points of interest.

During the several expeditions to Yucatan and Honduras a large number of moulds have been taken of sculptured stones and of monuments and tablets bearing hieroglyphs. From some of these moulds, casts have been made and placed on exhibition in the Central American Hall of the Museum. There are one hundred and sixty-five of these moulds which have not been cast, owing partly to the cost of making the casts and partly to the lack of room for their exhibition. It is desirable that casts from these moulds should be made and distributed to various museums for the benefit of students of the Maya hieroglyphs and sculptures. The Museum has not the means to do this work unassisted, but is willing to furnish a cast of any mould to any institution paying the cost of making two casts. When the labor and expense of making the moulds

and bringing them to Cambridge is considered, this offer must certainly be considered a reasonable one on the part of the Museum.

The Duke of Loubat, well known by his extensive patronage of research in American Archaeology, has given to the Museum one of the two hundred copies of the reproduction in facsimile of the ancient Aztec Codex known as the Codex Vaticanus, No. 3773. The reproduction of this Mexican pictographic book of 96 pages, by the Duke of Loubat, and his generous distribution of all the copies to institutions and special students, have done much to facilitate and encourage the study of Mexican pictographic writings.

The Duke of Loubat has also given a copy of the first part of a large folio album, with descriptive text by Dr. Hamy, the Director of the Museum of the Trocadéro, entitled "*Galerie Américaine du Musée d'Ethnographie du Trocadéro.*" This interesting work contains photographic reproductions of noted archaeological objects from America in the Paris Museum, published by the generosity of the donor.

Another valuable accession of importance in this connection is that of an original Mexican Manuscript, on native agave paper, dated 1531. The drawings and text are the work of an Aztec scribe and interpreter officially employed by the Spaniards to draw up grants of land and deeds of transfer. These pages refer to the appointment of an alcade for a certain village, to the determination of boundaries, etc. The text accompanying the pictographs is in Nahuatl written in Spanish characters. This rare old manuscript belonged to the Mary Hemenway Library, and is given to the Museum by the trustees of her estate.

Mr. George W. Hammond of Boston has presented to the Museum a large part of his private archaeological collection. Mr. Hammond personally obtained these objects during his travels in various parts of the world. Desiring that they should be in a safe place and be made useful to students, he has allowed a selection to be made of such objects as would fill gaps in several collections. There have thus been added to the Museum many valuable specimens collected by Mr. Hammond in Egypt, Switzerland, Sweden, and England, as well as in various parts of North America. Mr. Hammond has also given to the Library several valuable volumes on European archaeology not previously on the shelves.

To a constant friend, Mr. Clarence B. Moore of the class of 1873, the Museum is further indebted for pecuniary aid in its work; also for the gift of several cinerary urns and their contents, with

other specimens from ancient mounds in Georgia; and for a copy of his illustrated quarto memoir containing an account of his important explorations of the Georgia mounds. The discovery in these mounds of several distinct methods of disposing of the dead, including urn burial, is a noteworthy contribution to American archaeology.

Dr. Alexander Agassiz has given a bow and several arrows of the Tarahumari Indians of Northern Mexico. To Mr. G. R. Agassiz the Museum is indebted for three human crania and for an ethnological collection from the Marquesas islands, which he visited during his recent cruise in the Pacific.

Miss Adela Breton, an English lady who for several years has been travelling in Mexico in order to study the antiquities of the country, has collected and kindly sent to the Museum numerous archaeological specimens.

The Trustees of the Mary Hemenway estate have added to the Mary Hemenway Collection from the pueblo ruins of Arizona several specimens of special interest which for a time had been kept separate from the main collection. They have also been to the expense of having a large relief map made of the region of the Moki pueblos, showing the mesas, plains, rivers, and canons of this region in such a manner as to bring out clearly the environments of the ancient and present peoples of the province of Tusayan. With this map they have placed a model of the Moki pueblo of Walpi. Both of these models were made by Mr. Victor Mindeleff under the supervision of Dr. Fewkes. They are now placed in the centre of the upper hall devoted to the Mary Hemenway Collection from Tusayan, and add much to the value of this exceptionally complete collection, illustrating the past and present of the Tusayan people. The Trustees have also provided for changing the written labels for printed ones, and for the rearrangement of several of the cases so as to show in regular sequence the objects obtained from the ruins and those from the present Moki villages. This has been accomplished in a satisfactory manner by Mr. Willoughby without impairing the original arrangement of the collection as made by Dr. Fewkes.

Through Mr. Harris Kennedy of the class of 1894, there have been received from Mr. Andrew Gibb of Edinburgh, five pieces of rudely made pottery from the Hebrides. These were made several years ago by a woman who is thought to be the last one to make pottery according to the ancient method of shaping the clay with the hands and without the use of any form of potter's wheel.

Mr. Lucien Carr has given four pieces of pottery made by the Mohawks. Mr. F. H. Balch of the class of 1896 found an ancient

pottery vessel of Indian make washing out of a bank on Martha's Vineyard, and thoughtfully collected the pieces for the Museum.

Mr. J. L. Graves of Boston has given a doll and papoose board which he obtained from the Bannock Indians. Mr. Henry N. Jeffries of Hong Kong has made a valuable gift of six oil paintings, by a native artist, representing natives of Manila. Professor Lanman has presented several objects made of wood, found on the site of a Swiss Lake village. Mr. T. C. W. Nash has given a marimba, obtained by him in Africa, which is of a form differing from other specimens of these native musical instruments in the cases; and his brother Mr. G. W. Nash, Harvard 1878, has given a stone axe found in a Maori grave in New Zealand. Mr. James G. Pickett of Oshkosh, Wisconsin, has given a human cranium from an Indian burial place on the shore of Lake Butte-des-morts.

Mr. Frank Squier, the brother of Mr. E. G. Squier, the well-known explorer and author of several works on American archaeology, has made a valuable gift to the Museum of two original drawings in sepia by Catherwood, the constant companion of Stephens in his travels in Mexico and Central America. These beautiful drawings are presented to the Museum by Mr. Squier as from the estate of the late E. G. Squier, with the feeling that his brother would have been pleased to have them preserved in the Museum, where they can be seen in connection with the specimens and casts its expeditions have secured from Copan. The drawings are the originals of plates I and III of the folio volume "Views of Ancient Monuments in Central America, Chiapas and Yucatan," published in London in 1844. These plates represent two of the great "idols" of Copan. One of these "idols" is now known as Stela F and the other as Stela H. A comparison of Catherwood's drawings with the casts and photographs made by the Museum expeditions shows his accuracy of detail, as well as the artistic skill with which he used the pencil and brush in his representation of these ancient monuments. The placing of these pictures in connection with the collection from the ruins of Copan, where they were painted by Catherwood, adds an historic and artistic interest, since it associates with the collection the work of the greatest artist who ever visited the ruins, and of the two authors, Stephens and Squier, who were the American pioneers of research in Central America.

Several small contributions of money in aid of the Museum work have been received; and Mr. Bowditch has personally received and expended the money given by friends in aid of the explorations in

Central America and the publication of the *Memoirs*. He has taken so deep an interest as to be himself a generous contributor to and an earnest collaborator in the work of the Museum.

For many years there has been stored in the Museum an Egyptian mummy, intact in its wrappings and case as it was brought from Egypt by the late Mr. Charles Hale in 1866. Through the kindness of the Rev. E. E. Hale this mummy has recently become the property of the Museum by the payment of a slight charge for expenses, made necessary by the settlement of the estate.

There have been secured by purchase from Big Thunder a few objects illustrating the customs of the Penobscot Indians; and from Professor H. A. Ward several specimens from the Pacific islands which were desirable for the ethnological exhibit from that region.

Miss Maria Whitney has made a gift of the greatest scientific interest from the estate of her brother, the late Professor J. D. Whitney. This consists of the world-famous "Calaveras skull" and all the original documents relating to its discovery and history; with the gravel, small human bones and other objects found in the cemented debris in which the skull was enclosed at the time of its discovery, as shown by the photograph taken before the cemented material was removed. With these are also a rude stone mortar, stone pestle and steatite dish, found under similar geological conditions in California. The full history of the discovery of the skull by Mr. Mattison, in 1866, under four beds of lava in a shaft he had sunk to the depth of 127 feet, is given in Professor Whitney's volume on the "Auriferous Gravels of California," published in 1879 as Vol. VI of the *Memoirs of the Museum of Comparative Zoölogy*. When taken in connection with other discoveries under similar geological conditions in California, there seems to be no reason to doubt that these human remains were found in the gravel under the lava, as stated by Mr. Mattison. The principal question still in doubt is the exact age of the lava beds and gravels. The skull itself, so far as can be judged by a comparative study of the portion preserved, is of the type which there are reasons for regarding as the oldest on the Pacific coast. The objects, fashioned by the hand of man, found in the gravel, have been considered by some authors to be of a character too advanced in the development of the arts of man on the American continent to have come from so old a deposit. It must be remembered, however, that one cannot apply to American archaeology the old classification of the culture epochs which, during the growth of the science, has been more or less arbitrarily used to distinguish several periods of prehistoric culture in Europe. This very valuable

gift to the Museum is made by Miss Whitney in the name of her brother, with the assurance that it was his expressed wish that these objects should find their final resting place in this Museum in which he showed a sympathetic interest during his life. Certainly they could nowhere be more highly appreciated and valued for their scientific importance.

Early in the year notice was received from Dr. C. L. Metz of Ohio, that Miss Phebe Ferris of Madisonville had bequeathed to the Museum about twenty-five acres of land, on which is situated a large part of the ancient Indian cemetery where, in connection with Dr. Metz, since 1881, the Curator has carried on extensive explorations, and from which place a considerable collection has been made and exhibited in the Museum. This bequest was confirmed by a notice from the executor of Miss Ferris's will. It was known that Miss Ferris was much interested in the explorations on her farm, to which she always gave her consent and kindly aid; and it was her expressed desire that the Museum should have the right to continue the work, and that after the explorations were completed the land should be used as a public park, thus marking the site of the ancient village and cemetery.

It was deemed desirable to carry on explorations during the past summer, and to this end, with pecuniary assistance from Mr. Charles P. Bowditch, and the understanding that the income of the Huntington-Frothingham-Wolcott Fund would be applied to the work, two graduate students in this department, Mr. R. B. Dixon and Mr. J. R. Swanton, with Mr. Ingersoll Bowditch of the class of 1897, assisted by the coöperation of Dr. Metz, have explored a portion of the ground. Mr. Ingersoll Bowditch made a survey and plan of the whole cemetery and village site. This exploration has secured to the Museum a number of human skeletons and many objects from the graves and singular ash-pits of which so many have been found in this interesting place. It has also furnished to the students the opportunity of making archæological researches in the field. Over 200 boxes containing human skeletons, animal bones, pottery, bone and stone implements, ornaments, pipes, etc., have been received from this exploration. This material will be studied and reported upon by Mr. Swanton as part of his work as a student in the department. This will give him the opportunity of carrying on original investigations on material he has collected in the field, —an essential preparation for his future work.

Mr. W. B. Nickerson, who was a student in the Museum, several years ago, but was obliged to withdraw and take a business position,

has never lost his love for archaeological investigation. He continues to devote his vacations and such time as he can take from business to explorations in the vicinity of his home in Galena, Ill. He has during the past few years explored a group of mounds in a most thorough and scientific manner, and he has noted a number of interesting facts relating to their structure, which he has described in detail with plans and drawings. He has also explored a rock-shelter and a stone-grave near Portage, Ill. He has sent his reports to the Museum and also the objects found during his explorations, as well as many interesting specimens obtained from excavations and from river banks or on the surface. These are valuable contributions from Mr. Nickerson and it is to be hoped that he will be able, next year, to carry out his plan of making a special exploration for the Museum.

Mr. Willoughby has been engaged during the year in completing the arrangement and the labelling of the Mary Hemenway Collection, in cataloguing and bringing together the ethnological material for arrangement in the Warren Gallery, and lately, in arranging the ethnological collections relating to the Indian tribes of North America. For this latter exhibit, the cases in the Lecture Hall on the first floor have been assigned; and here will be displayed a collection of ethnological material most of which has never before been exhibited. Mr. Willoughby has also catalogued the collections made by Mr. Gordon, during the past two years, and now on exhibition in the Central American Hall. In this work he was aided by Mr. Charles W. Mead, whose valuable assistance during the larger part of the year was a great benefit to the Museum. On the first of October Mr. Mead removed to New York with his family, and he now has the position of Cataloguer in the Department of Anthropology of the American Museum. Mr. Willoughby has given assistance in the preparation of the two memoirs published during the year. For these memoirs he has made the drawings and has attended to the preparation of the half-tone plates, for which he made a number of the photographs. During the summer he made a short archaeological trip in Maine. He has prepared the drawings and manuscript for a paper, soon to be published by the Museum, giving an account of ancient burial places in Maine which he has explored for the Museum. In the absence of the Curator, Mr. Willoughby acts as Assistant Curator in charge of the Museum.

Miss Fletcher, assisted by Mr. La Flesche, has added to the value of the collection she made while among the Omahas by a personal

revision of the material. This collection has been labelled and rearranged in the lower hall.

Mr. Frank Russell, who is taking an active part as Instructor in Anthropology, has charge of Course 1. To Mr. Russell has been assigned the charge of the osteological collection. He has catalogued a number of crania and skeletons recently added, and is making an annotated card catalogue of the whole collection.

As opportunities permit in the work of the Museum, such specimens as are most needed for class instruction are placed in cases in the laboratory for the use of the students, so as to interfere as little as possible with the arrangement of the collections in the Museum, which are intended for special and comparative research and study by advanced students and specialists.

During the year a number of classes from schools in Cambridge and vicinity visited the Museum, when the Curator or his assistant gave brief talks on special collections.

Mr. A. L. Dakin has entered the Museum as a private student and is now assisting in the arrangement of the Indian collection.

Miss Smith has continued in charge of the Library, which now contains 1838 volumes and 2479 pamphlets on anthropology. 128 volumes and 158 pamphlets have been added during the year.

Such duplicate volumes and pamphlets as are of special use in the Students' Library are placed permanently in the book case in the laboratory, and other volumes are transferred to the laboratory as they are required for reference in connection with the lectures. This laboratory should be provided far more extensively with apparatus and special materials for the use of the students, but this cannot be done from the limited income of the Museum funds.

Miss Mead has continued as secretary in charge of the correspondence of the Museum.

Mr. Chick has continued in charge of the building, and has given assistance in various ways in connection with the work of the Museum.

Respectfully submitted,

F. W. PUTNAM,
*Peabody Professor and Curator
of the Museum.*

CAMBRIDGE, November 18, 1897.

THE SEMITIC MUSEUM.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — Since my last annual report Dr. John Orne has continued his work of examining the Arabic manuscripts belonging to our collections. From time to time the results of this study are embodied in manuscript volumes, which Dr. Orne presents to the Museum.

In February, 1897, the Museum came into possession of an alabaster fragment of an Assyrian inscription which for nearly half a century had belonged to the late Professor Josiah D. Whitney. The fragment was sent by a missionary to Professor Whitney about 1850. From the few signs remaining it has been identified as a portion of the so-called "Standard Inscription" of Assurnazirpal of the 9th century, B.C., and comes, doubtless, from the ruins of this king's palace at Nimrûd.

The sections of our Museum which are best developed are the Arabic and the Assyrian, the former being represented by manuscripts and inscribed stones, the latter, by Assyrian and Babylonian clay tablets and seals, and by casts of the monuments in London, Paris, and Berlin. Phœnicia of the Roman period is represented by some excellent specimens of glass vases.

The section which is in special need of development is the Palestinian. A valuable collection from Palestine might now be secured if we had the money. This would be of great interest and value, and could not fail to become the central feature of our Museum, a distinction which naturally belongs to the Palestinian section. The friends of Biblical learning and of Hebrew history have the opportunity, by aiding in the purchase, to do a service to the University and to the general public.

The problem of a Semitic building is not yet solved. Meanwhile other institutions are erecting buildings devoted largely or in part to Semitic interests. Through the munificence of Mrs. Haskell the University of Chicago has its Oriental Museum, which was formally opened in July, 1896. The University of Pennsylvania has planned a building of vast proportions and range for which it is reported that several hundred thousand dollars have already been secured. While such a great anthropological museum must be the goal for Harvard also, our immediate Semitic needs could be met with sixty or seventy

thousand dollars. A few friends have offered us help to the extent of nearly half this sum, but these promises remain ineffective until other pledges are made. Any gifts now, therefore, will be a double help.

As in former years, it is a pleasure to report that the collections of the Museum continue to be attractive and instructive to students of Semitic and to the public.

D. G. LYON, *Curator*.

CAMBRIDGE, Nov. 12, 1897.

THE FOGG ART MUSEUM.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — I have the honor to submit the following report on the Fogg Art Museum for the year 1896-97:—

To the collection of casts have been added the cast of the Madonna of S. Lorenzo by Michael Angelo, referred to in my last report, and a large relief from the Arch of Trajan at Beneventum. This last is one of a number of casts from that monument which have recently been made under the direction of the American School in Rome; and it well illustrates the character of imperial Roman sculpture at its best. Our collection of casts of Greek and Greco-Roman sculptures, though small, is now fairly synoptical.

To our photographs extensive additions have been made comprising illustrations of works of art of various kinds as follows: Classical antiquities, Egyptian antiquities, various antiquities in the Louvre and the British Museum, Indian sculptures, Roman remains of architecture in Italy, Byzantine architecture (including about seventy-five views of the church of Sta. Sophia of Constantinople), Spanish architecture, French architecture and sculpture of the Renaissance, and German, Italian, Spanish, and Dutch paintings. The Museum has received by gift from Professor Norton five large photographs from buildings designed by the late H. H. Richardson, and nine small photographs from Greek sculptures taken in Greece by Miss M. H. Buckingham. The total number of photographs acquired during the year is 8948, which, added to the number (15,811) previously acquired, makes the whole number in the collection on September 1st 24,759. In making additions a symmetrical development of the collection is, as far as possible, maintained; while, at the same time, the illustrations of important monuments of architecture and sculpture, and of the works of great painters and schools of painting, are made as full in numbers as our resources will allow. There are necessarily, however, still many gaps to fill.

To the collection of slides 331 additions were made; The total number of slides in the cases on September 1st being 1169.

A handsome marble tablet has been placed in the wall over the first landing of the stairway, with the following inscription:—

THE WILLIAM HAYES FOGG
ART MUSEUM OF HARVARD COLLEGE
FOUNDED BY ELIZABETH FOGG
IN MEMORY OF HER HUSBAND
TO BE USED FOR THE COLLECTION AND
EXHIBITION OF WORKS OF ART OF EVERY
DESCRIPTION AND FOR THE EDUCATION
AND ENLIGHTENMENT OF THE PEOPLE
IN RESPECT TO ART AND THE WORK OF
ARTISTS
MDCCCXCV

The chief acquisition of the year, and by far the most important one since the establishment of the Museum, is that of our own Gray Collection of Engravings which has recently been transferred from the Boston Museum of Fine Arts. During the twenty-one years that this collection has been deposited in Boston it has, under the able curatorship of Mr. S. R. Koehler, received some important additions, a large number of the engravings have been suitably remounted, the entire collection has been conveniently classified under the three distinctive heads of Intaglios, Reliefs, and Planographic prints arranged by countries, chronologically by engravers, with the date at which each engraver did his best work. All of the prints have been accessioned, and a proper working catalogue has been begun.

It is a matter of great satisfaction that the Fogg Museum affords at last a safe and convenient place within easy reach of members of the University, for the preservation, exhibition, and administration of this collection, the importance of which as a part of our general University equipment can hardly be exaggerated, and the absence of which from Cambridge has been keenly felt. The Gray Collection is a possession which should rank among the foremost of those which distinguish the University as a seat of culture. The art of engraving is the only branch of the Fine Arts of the past which may be studied in our country at first hand in the best original works. This collection is rich in prints from the engravings and etchings of those great artists of the Early German and Italian schools who wrought their own designs in the wood and metal. Such prints are rarely accessible outside of the large European collections. It contains also many specimens of the earliest experimental works, together with a sufficiently full series of prints exhibiting the later forms of

engraving, including the achievements of our own time, to afford a serviceable knowledge of the whole history of the art. It is thus an especially valuable collection for purposes of University instruction; and while the numbers of students who will use it for serious special study is not likely to be large, the numbers of those who will gain much by its presence here cannot fail to be considerable.

The collection is deposited in the larger east room on the top floor of the Museum, where it has ample space, with abundant room in reserve for future accessions. The Corporation has thus at length been able to carry out one of the express conditions of Mr. Gray's gift, which was: "That the College within a reasonable time prepare and fit up suitable rooms in which the collection shall be securely kept, and properly arranged for inspection and exhibition. Especial regard is to be had to security against fire and other injury, as well as to convenience of access to visitors." * For storage of the engravings dust-proof cases, of handsome quartered oak with interior fittings of Spanish cedar, have been constructed, while for their display by relays large dust-proof wall cases, covering the whole available wall space, and two large table-cases—all enclosed with plate glass—are provided. The room contains also a large table for the special examination of prints, and an adjoining small room, also furnished with a large table, can likewise be used for private study. When the collection is in use by students the rooms may be closed to the general public.

The numbers of visitors to the Museum continue to be large, and on Sunday afternoons it has been found necessary to have a second attendant on duty. The number of visits during the year, made by members of the University and others, for the purpose of special study of photographs in the cases was 1145, of which 219 were evening visits. Photographs were from time to time loaned to the Classical, German, and Architectural departments, and to several persons not connected with the University, for use outside of the Museum. The total number of such loans for the second half-year (before which no record of these loans was kept) was 48. Our photographs have also been used for making slides by representatives of other institutions. Slides have been loaned on several occasions to the Classical department, and to a few outsiders.

The work of cataloguing has gone on steadily, and the number of photographs catalogued, and entered in our accession book during the year, was 5982. The work of cataloguing is necessarily slow,

* Letter of Mr. William Gray to the President and Fellows of Harvard College, dated Jan. 26, 1857.

as considerable writing has often to be done on the mount of each photograph, and a good deal of cross referencing is necessary to facilitate use. Moreover, the Curator's assistant, who does this work single handed, has other duties of administration to perform.

While it may be said that the Fogg Museum is becoming handsomely equipped, there are yet many directions in which its usefulness as a working University Museum needs to be enlarged by additions; but for such additions new resources are needed. Not only is it important that the steady growth of the collection of photographs should be maintained; but it is also desirable, as I have before remarked, that the Museum should possess at least a few examples of original work of the highest class in painting by masters of the great schools of the past. Such examples are, from time to time, obtainable; but they are very costly, and it is only through the generosity of friends of the Museum that we can ever hope to acquire them. The available resources from the Fogg endowment are now nearly exhausted, and unless gifts of money are received the growth of our Museum must cease.

CHARLES H. MOORE, *Director.*

MINERALOGICAL MUSEUM AND LABORATORIES OF MINERALOGY AND PETROGRAPHY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—As this is the first report from this Department since the separation of the subjects of Mineralogy and Petrography from Chemistry and Geology respectively, it appropriately covers the three years from 1894 to 1897.

The following courses are now conducted in the Mineralogical section of the University Museum:—

Mineralogy	2.	Elementary Mineralogy.
"	3.	Building stones (for architects).
"	7.	Crystallography,
"	8.	Optical Mineralogy.
"	12.	Petrography.
"	20.	Mineralogical and Petrographical Research.

The courses in Economic Geology, and in Mining and Metallurgy are also temporarily accommodated in this section.

Dr. Charles Palache was Instructor in Mineralogy, and Dr. F. L. Ransome, Assistant in Mineralogy and Petrography for the year 1896-97.

Considerable changes have been made in the equipment and uses of the various rooms. In the basement the Chemical Laboratory has been thoroughly equipped for the most exacting mineral and rock analysis. An addition valuable in itself and peculiarly appreciated from its associations was the gift from the late Professor Whitney of all the platinum ware with which his early mineral analyses were performed. The other two basement rooms are still occupied by the metallurgical courses for fire assaying with great mutual inconvenience and the sacrifice of space much needed for the Chemical Laboratory. On the first floor the large laboratory for Determinative Mineralogy has been improved by a better arrangement of the tables and cases; in the adjoining lecture room the vacant wall space has been utilized for cases containing collections of crystal models, rocks, etc., and the windows provided with tables for

microscopic work. The room is now used as the general lecture room of the Department, and as a laboratory for crystallography and petrography, with the necessary collections. The electric light has been introduced for projection. Of the two smaller rooms on this floor, one has been fitted up for advanced students and for the use of Radcliffe students in Mineralogy; the other contains the library of the Department.

The two rooms on the second floor are used for advanced crystallographic and optical work and for general research; some of the cases moved from the old Petrographical Laboratory have been placed here for the systematic collection of minerals not used for exhibition or teaching purposes.

In making changes and additions to the equipment and collections the aim has been to make the Mineralogical Museum more attractive and instructive to the public, to increase the efficiency of the elementary and advanced instruction, and to accumulate material and apparatus for pure research; progress has been necessarily slow, but some advances can be mentioned. In the exhibition rooms open to the public the entire available space not devoted to the special collections was formerly occupied by the systematic collection of minerals. Dr. Palache spent a winter in carefully revising this material, removing duplicates and specimens unsuitable for exhibition, with the result that the whole systematic collection is now contained on the main floor, leaving the space in the gallery to be utilized for other purposes. At the same time some new specimens have been added by purchase or gift, and a general cleaning of the specimens and trays has made the general appearance of the collection more attractive. This collection still needs extensive re-labelling to bring it up to date and make it more intelligible to the public. It is proposed to utilize the gallery space in part for collections illustrating special features of Mineralogy such as crystallography, the physical characters of minerals, their mode of occurrence and economic uses, and perhaps a small collection of rocks. A special collection of crystals is now under way. Another problem was that of exhibiting the collection of cut gems and gem minerals, principally the gift of Mr. James A. Garland, in an attractive way and with due regard to their safety. The Department was enabled to do this by an appropriation from the Corporation, with which two specially built cases were placed on the west side of the gallery, the first containing the Hamlin Collection of tourmalines and the second the various other gem minerals. As a further precaution for the safety of the building generally, a watchman now sleeps in one of the rooms.

A few gifts of minerals have been received from friends, notably a great crystal of gem tourmaline from Paris, Maine, from a graduate of the class of 1868, many specimens of Utah minerals from A. F. Holden, '88, large Joplin calcites from Mr. James Roach, agates from Dr. W. Sturgis Bigelow for the Bigelow collection, and others. Professor Whitney gave his collection of minerals, and Dr. A. C. Hamlin has interested himself in filling gaps in the collection of tourmalines bearing his name.

Large additions have been made to the equipment for teaching Elementary Mineralogy, especially in regard to crystallography — that bugbear of most beginners. In addition to the old collection of glass and wooden models there has been formed a collection of over one thousand crystals, which are placed freely in the hands of students. The systematic collection of minerals for students' use has been entirely re-arranged and enlarged; and it is gratifying to note that with free access to this excellent and often valuable material hardly a single specimen is missing and the accidental damage is insignificant, showing that the students appreciate this privilege. A large two-circle goniometer, one of the first introduced into this country, has been added to the advanced laboratory, and has been used by Dr. Palache in his work on the Lake Superior calcites. The Library has been enlarged by the purchase of a few independent works and by the Curator's own books and pamphlets. The principal periodicals are now subscribed for, so that almost the entire mineralogical and petrographical literature available in the University is concentrated here.

The changes outlined above have taken much of the spare time of the members of the Department during this period. The Curator's summer vacations have been devoted to field work in connection with the National and State surveys in New Jersey and Vermont, with occasional visits to mineral localities and collections; in this way it has been possible to make a few valuable acquisitions on the spot. The following papers have been published by him: —

On an Occurrence of Theralite in Costa Rica. *Amer. Journ. Science*, April, 1896.

The Eruptive Rocks of Sussex Co., N. J. *Report State Geologist of N. J.*, 1896.

(In press) The Age of the White Limestone of Sussex Co., N. J. (with A. H. BROOKS). *18th Annual Report of the Director of the U. S. Geol. Survey*.

(In preparation) Franklin Furnace, N. J. Folio of the Geological Atlas of the U. S. with descriptive text.

And some minor reports.

Dr. Palache has prepared during the past year a monograph on the crystallography of the Lake Superior calcites to be published by the Geological Survey of Michigan, for which crystals from nearly all the prominent collections in the country were loaned for study or examined by visit. He has published; —

Crocoite from Tasmania. *Amer. Journ. Science*, May, 1896.

Crystal Measurements by means of Angular Coördinates and on the use of the Goniometer with two Circles. *Amer. Journ. Science*, October, 1896.

He attended the International Congress of Geologists at St. Petersburg the past summer as delegate from the Museum, and has assumed the duties of associate editor for Mineralogy of the *American Naturalist*.

The following theses and other original work by students in this department have been published: —

Dr. L. G. WESTGATE: The Geology of the Northern Part of Jenny Jump Mt., N. J. In *Report of State Geologist* for 1895.

Dr. R. A. DALY: The Porphyritic Gneiss Areas of New Hampshire. *Chicago Journal of Geology* (in press).

Dr. T. A. JAGGAR, JR.: Simple Instrument for Inclining a Preparation in the Microscope. *Amer. Journ. Science*, February, 1897.

— — —: A Microsclerometer for the Determination of the Hardness of Minerals. *Amer. Journ. Science*, December, 1897.

The same in German, in Groth's *Zeitschrift für Krystallographie*.

The matter which gives the Curator much concern for the future is how to keep the collection of minerals up with the times. Many persons unfamiliar with the conditions imagine that a good mineral collection once formed can remain stationary. The reverse is the truth; for with the rapid development of mining and exploration the world over, new localities are constantly discovered which yield either entirely new minerals, or new types of old ones, or specimens superior to any previously found. With the great number of public and private collections, the better specimens are the object of keen competition, and can only be obtained from the dealers at corresponding prices. Localities are sooner or later exhausted and the better specimens finally absorbed. In consequence representative specimens are no longer attainable from some famous European localities. Since Nature has made minerals once for all, the Museum ought to be enabled to seize all available opportunities of acquiring good specimens. The Curator has seen with keen regret many specimens desirable for exhibition or research refused from lack of money to

pay for them, although offered here first, and needed to fill gaps in the collections. The collection of meteorites, which is among the first in the world, is falling behind for this reason; and the systematic collection of minerals, while rich in spots, is as a whole surpassed even by some private collections in this country. Five thousand dollars a year could have been profitably expended during the last three years on material offered. The Mineralogical Museum, with its semi-public function, has no endowment for the purchase of minerals or for any other purpose.

J. E. WOLFF, *Curator*.

RADCLIFFE COLLEGE.

TO THE PRESIDENT OF THE UNIVERSITY: —

SIR, — I have the honor to present my report on the condition of Radcliffe College during the academic year 1896-97.

The number of students in actual attendance during the year was three hundred and seventy:—

Graduate Students	40
Seniors	31
Juniors	38
Sophomores	53
Freshmen	55
Special Students	158
Total	370

These figures show a gain of twelve over the preceding year, too slight an increase to be reckoned a gain; but this apparent check to the growth of the College is due to financial depression, for which reason more than forty applicants were compelled to withdraw at the beginning of the term.

At the Commencement in June, 1897, thirty students received the degree of Bachelor of Arts. Four of them received the degree *summa cum laude*; eleven received the degree *magna cum laude*; eleven received the degree *cum laude*. Six students received the degree of Master of Arts. Three Alumnae who held the certificate of the Society for the Collegiate Instruction of Women received the Radcliffe degree. Of the sixty-five Alumnae who held the certificate of the Society, fifty-one have now received the Radcliffe degree.

The George B. Sohler prize for 1897 was for the first time awarded to a Radcliffe student, — Beulah Marie Dix, of the Class of 1897. The subject of her thesis was “Published Collections of English and Scottish Ballads, 1765-1802.”

Examinations for admission were held, in July, 1897, in South Byfield, Cleveland, Concord (N. H.), Denver, Exeter, Kansas City, Minneapolis, Philadelphia, Portland (Me.), Quincy, San Francisco, Springfield, Washington (Conn.), Washington (D. C.), and Worcester, as well as in Cambridge and New York. Three hundred and forty-seven candidates presented themselves for examination; thirty-six were candidates for admission as special students; sixty candidates took part of the examination or made up admission

conditions; four candidates were examined for advanced standing. One hundred and fifty-five took the Preliminary Examinations, and ninety-two the Final Examinations. The results of the final examinations are given in the following table:—

	Admitted.	Admitted "Clear."	Rejected.
June	84	88	8
September	4		1
Total	88		4
Total rejected	4		
	92		

Eighty-eight candidates were admitted as Freshmen in 1897, as against seventy-nine in 1896.

Of the forty Graduate Students registered during the year, thirty-three were from other colleges than Radcliffe. Two of these thirty-three had taken a second degree at Radcliffe and were doing advanced work in different lines. One Graduate Student had taken her Ph.D. degree at the University of Heidelberg, and was registered in Radcliffe that she might continue her research-work in the Zoölogical Laboratory. Seventeen students were admitted to nine full courses, and one student to one half-course of the "Courses primarily for Graduates in Harvard University open to competent students of Radcliffe College."

Classical Philology was taken	by one student.
French was taken	by one student.
Romance Philology was taken	by two students.
Philosophy was taken	by five students.
Education and Teaching was taken	by three students.
Government was taken	by four students.
Mathematics was taken	by two students.

The number of courses offered in 1896-97 was 181, by 108 professors and instructors in Harvard College.

The members of the Academic Board of Radcliffe College for 1896-97 were: Professors Byerly (*Chairman*), Allen, Mark, Wright, Macvane, B. O. Peirce, von Jagemann, Taussig, and Kittredge; and the President and the Dean of Radcliffe College.

Last November, Dean Hodges, Dr. McKenzie, and Mr. Crothers volunteered their aid in the conduct of a short morning service, and, thanks to their unwearied kindness, the system of voluntary morning-prayers has been introduced into Radcliffe College and may be reckoned a part of the daily routine. The service is modelled on that used in the Harvard College chapel, and the service-books are the Responsive Readings and the University Hymn Book.

The gifts, bequests, and legacies received during the past year amount to \$97,396.58 and include the following :

From Arthur T. Lyman, \$5,000 to found a scholarship in memory of his wife, Ella Lowell Lyman.

From "Students and Friends of Radcliffe College, to Radcliffe College Library, in grateful appreciation of the services of Arthur Gilman, 1878-1896," \$1,297.13 to establish a book fund to be known as the Arthur Gilman Book Fund.

From the pupils and friends of the late Caroline I. Wilby, \$3,060, "the interest of which is to be used annually as a prize for original work by an advanced student in any department."

From the trustees of the Randall Fund, \$10,000, "to be invested as a permanent fund, to be known as the John W. and Belinda L. Randall Fund, the income to be used for the purposes of Radcliffe College."

From the estate of Sarah Parker, \$73,039.40. Miss Parker made Radcliffe College her residuary legatee, and the value of the estate has largely exceeded the estimate made in 1894, at the time of Miss Parker's death. Radcliffe College has already received from this source \$94,179, and it seems fitting that in some way the name of Sarah Parker should be commemorated in the College she has so largely benefited.

From Mrs. Josiah M. Fiske, \$5,000, to be added to the Josiah Mason Fiske Endowment Fund, established by Mrs. Fiske in 1896, and now amounting to \$10,000. In 1894 Mrs. Fiske gave Radcliffe College \$5,000 to found a scholarship in memory of her husband.

At the meeting of the Associates of Radcliffe College, in the autumn of 1896, a plan was proposed and accepted by which the need of better academic accommodation could be met for a few years to come. In accordance with this plan, Radcliffe has purchased during the year, four properties in its immediate neighborhood, making an addition of 35,742 sq. ft. to its previous holding of about 80,000 sq. ft. These purchases include two schoolhouses which temporarily meet the need of lecture-rooms, and they give a site for a gymnasium, for which plans have been prepared. The necessity for a building for laboratory purposes is more pressing than ever, since a situation for the chemical laboratory must be found before next September.

Radcliffe Monograph No. 9 is in the hands of the printer and will be published before this report appears; it is entitled "An Inquiry into the Authorship of the Middleton-Rowley Plays," by Pauline G. Wiggin, A.M., and has been prepared under the direction of Assistant

Professor George P. Baker, of Harvard University. A thesis by Margaret Lewis, A.M., entitled "Studies on the Central and Peripheral Nervous System of Two Polychaete Annelids," has been prepared under the direction of Professor E. L. Mark, and arrangements have been made for its publication in the Proceedings of the American Academy of Natural Sciences. This thesis has been certified to by a competent committee as "of such merit that it would have been approved by them as a thesis for the degree of Doctor of Philosophy." A thesis prepared by Kate O. Petersen, A.M., under the direction of Professor George L. Kittredge, is to be published in the series of Radcliffe Monographs. In connection with this thesis and with the work done in Radcliffe by Miss Petersen, I respectfully submit the following communication from Professor Kittredge, Chairman of the Division of Modern Languages in Harvard University, to the Dean of Radcliffe, under the date of June 23, 1897.

"Miss Kate O. Petersen, of Radcliffe College, has fulfilled such conditions of residence, study and examination as would, if she were a student in Harvard University, entitle her to the degree of Doctor of Philosophy. Miss Petersen has been a resident student in the Graduate Department of Radcliffe College for three years, and her work during that time has been of the highest character. She has prepared a thesis 'On the Sources of Chaucer's Nonne Prestes Tale' which gives evidence of careful study and of original investigation, and which is distinctly a contribution to knowledge. This thesis was examined by Professor A. R. Marsh, Dr. Max Poll, and myself, and it was by us certified to be of such merit as would have insured its acceptance if Miss Petersen had been a candidate for the degree of Ph.D. in Harvard University. The oral examination of Miss Petersen took place on June 15th, and was creditably passed by her. The chairman of the Division of Modern Languages presided, and the following members of that Division were present: Professors A. S. Hill, Sheldon, Briggs, von Jagemann, Schilling, Kittredge, Grandgent, Marsh and Baker; Drs. Poll, Bierwirth, Garrett and Robinson. After a long and searching oral examination, in which questions concerning Gothic, Anglo-Saxon, Middle English, Modern English, general Mediaeval literature and the Tiersage were included, and in which both literary and linguistic matters were inquired into, it was unanimously voted to inform the authorities of Radcliffe College that Miss Petersen had satisfied all the tests which would be demanded in the case of a candidate for the degree of Ph.D. in Harvard University.

"In order that there may be no doubt or question concerning this matter, I wish to certify that all the conditions that would have been required of a student in Harvard University, namely (1) residence and study, (2) the preparation of a thesis, and (3) the passing of an oral examination, were amply and creditably fulfilled by Miss Petersen."

AGNES IRWIN, *Dean.*

APPENDIX.

RESIGNATIONS.

- PORTER EDWARD SARGENT, Assistant in Zoölogy, October 12, 1896.
CHARLES FRANKLIN DUNBAR, Editor of the Quarterly Journal of Economics, November 9, 1896.
JOHN CORBIN, Instructor in English, December 14, 1896.
HUTCHINS HAPGOOD, Assistant in English, December 14, 1896.
HERMAN WADSWORTH HAYLEY, Assistant in the College Library, February 2, 1897.
JEREMIAH JOSEPH SULLIVAN, Steward of the Harvard Dining Association, July 12, 1897.
HUTCHINS HAPGOOD, Assistant in English, September 28, 1897.
WESLEY LEVI LABAW, Demonstrator, and Assistant Instructor in Comparative Anatomy, Assistant Surgeon at the Hospital, and Curator of the Veterinary Museum, September 28, 1897.
GEORGE ANDREW REISNER, Instructor in Semitic, September 28, 1897.
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APPOINTMENTS.

[UNLIMITED, OR FOR TERMS LONGER THAN ONE YEAR.]

- KUHO FRANCKE, to be Professor of German Literature, from September 1, 1896, October 26, 1896.
FRANK WILLIAM TAUSSIG, to be Editor of the Quarterly Journal of Economics, November 9, 1896.
WILLIAM GARROTT BROWN, to be Deputy Keeper of the University Records, from September 1, 1896, November 9, 1896.
HERMAN WADSWORTH HAYLEY, to be Assistant in the College Library, from September 1, 1896, November 9, 1896.
LEWIS EDWARDS GATES, to be Assistant Professor of English, for five years from September 1, 1896, November 30, 1896.
EDWARD CHANNING, to be Professor of History, January 11, 1897.
ALBERT BUSHWELL HART, to be Professor of History, January 11, 1897.
NATHANIEL DANA CARLILE HODGES, to be Assistant in the Library, from March 1, 1897, March 1, 1897.
EDWARD HALE, to be Assistant Professor of Homiletics, for five years from September 1, 1897, April 12, 1897.
JOSEPH HENRY BEALE, to be Professor of Law, from September 1, 1897, April 14, 1897.
FRANK BEVERLY WILLIAMS, to be Assistant Professor of Law, for five years from September 1, 1897, April 14, 1897.
JOHN JOSEPH HAYES, to be Instructor in Elocution, May 24, 1897.
FRED NORRIS ROBINSON, to be Instructor in English, May 24, 1897.

CHARLES GROSS, to be Assistant Professor of History, for five years from September 1, 1897, June 14, 1897.

KENNETH WINSLOW, to be Assistant Professor of Veterinary Therapeutics, for five years from September 1, 1897, June 14, 1897.

WILLIAM PARKER COOKE, to be Instructor in Crown and Bridge Work and in Metallurgy, for three years from September 1, 1897, June 14, 1897.

WALTER SAFFORD BURKE, to be Instructor in Mechanical Engineering, from September 1, 1897, June 16, 1897.

MAURICE HOWE RICHARDSON, to be Assistant Professor of Clinical Surgery, for five years from September 1, 1897, June 29, 1897.

CYRUS BENNETT FOGLER, to be Steward of the Harvard Dining Association, September, 28, 1897.

[FOR ONE YEAR OR LESS.]

For 1896-97.

HARVEY HUMPHREY BAKER, to be Instructor in Law, October 12, 1896.

PATRICK JAMES CRONON, to be Instructor and Assistant Surgeon at the Free Clinic, October 12, 1896.

FRANK INGERSOLL PROCTOR, to be Instructor in Ophthalmology, October 12, 1896.

ALBERT JAMES SHELDON, to be Instructor in Meat Inspection, October 12, 1896.

WILLIAM ORISON UNDERWOOD, to be Instructor on Warrant and Evidence, October 12, 1896.

WILLIAM EMANUEL WALE, to be Instructor in German, October 12, 1896.

LESTER HEARD HOWARD, to be Clinical Lecturer, October 12, 1896.

WESLEY LEVI LABAW, to be Demonstrator of Anatomy, Assistant Surgeon in the Hospital, and Curator of the Veterinary Museum, October 12, 1896.

GEORGE BROWN FOSS, to be Resident Hospital Surgeon and Lecturer on Diseases of Dogs, October 12, 1896.

DON CARLOS BARNETT, to be Proctor, October 12, 1896.

WILLIAM FREDERICK BOOS, to be Proctor, October 12, 1896.

HENRY BARRETT LEARNED, to be Proctor, October 12, 1896.

HERBERT CAMP MARSHALL, to be Proctor, October 12, 1896.

GUY MURCHIE, to be Proctor, October 12, 1896.

JOHN LINCOLN AMES, to be Assistant in Histology, October 12, 1896.

WILLIAM FREDERICK BOOS, to be Assistant in Chemistry, October 12, 1896.

HENRY HARMON CHAMBERLIN, to be Assistant in English, October 12, 1896.

JOHN FIRMAN COAB, to be Assistant in German, October 12, 1896.

GEORGE VAN NESS DEARBORN, to be Assistant in Philosophy, October 12, 1896.

JOHN WINTHROP DOW, to be Assistant in Chemistry, October 12, 1896.

FRANK BERNARD GALLIVAN, to be Assistant in Chemistry, October 12, 1896.

CHARLES SUMNER GRIFFIN, to be Assistant in Political Economy, October 12, 1896.

FREDERICK SPAULDING DELUE, to be Assistant in Histology, October 12, 1896.

LANGDON FROTHINGHAM, to be Assistant in Pathology, October 12, 1896.

FRANK HENRY GAZZALO, to be Assistant in Chemistry, October 12, 1896.

JOHN VALENTINE HALL, to be Assistant in Botany, October 12, 1896.

JOSEPH HENRY HATHAWAY, to be Assistant in Zoölogy, October 12, 1896.

FRED EMORY HAYNES, to be Assistant in History, October 12, 1896.

ROBERT RUSSELL HOLLISTER, to be Assistant in Chemistry, October 12, 1896.

ROBERT MACDOUGAL, to be Assistant in Philosophy, October 12, 1896.

VERNON FREEMAN MARSTERS, to be Assistant in Geology, October 12, 1896.

BENJAMIN SHORES MERIGOLD, to be Assistant in Chemistry, October 12, 1896.

JOHN FREDERIC OSBORN, to be Assistant in Mechanical Drawing, October 12, 1896.

ALBERT RADDIN SWEETSER, to be Assistant in Botany, October 12, 1896.

STEPHEN EDGAR WHITING, to be Assistant in Electrical Engineering, October 12, 1896.

WILLIAM STERLING YOUNGMAN, to be Assistant in History, October 12, 1896.

JOSEPH HENRY BRALE,

IRA NELSON HOLLIS,

EDWARD HICKLING BRADFORD,

AUGUSTUS PEABODY GARDNER,

WILLIAM ALLEN BROOKS,

LOUIS ADAMS FROTHINGHAM,

} to be a Committee on the Regulation of
Athletic Sports, October 26, 1896.

JOHN FISKE, to be Lecturer on "Colonial Virginia and the other Southern Colonies," October 26, 1896.

SAMUEL TRAIN DUTTON, to be Lecturer on School Supervision, October 26, 1896.

SAMUEL SILAS CURRY, to be Instructor in Elocution, October 26, 1896.

ASHER HARRIMAN ST. CLAIR CHASE, to be Instructor in Mechanical Dentistry, October 26, 1896.

HARRY WEST HALEY, to be Instructor in Mechanical Dentistry, October 26, 1896.

HARVEY WINCHESTER HARDY, to be Instructor in Operative Dentistry, October 26, 1896.

EDWIN LINWOOD FARRINGTON, to be Instructor in Operative Dentistry, October 26, 1896.

JOHN ALDEN, to be Assistant in English, October 26, 1896.

GEORGE CARROLL CURTIS, to be Assistant in the Geographical Laboratory, October 26, 1896.

DWIGHT WARD DICKINSON, to be Assistant Demonstrator of Operative Dentistry, October 26, 1896.

ROBERT JOHN McMEEKIN, to be Assistant Demonstrator of Mechanical Dentistry, October 26, 1896.

EDWARD HALE, to be Instructor in Homiletics, November 9, 1896.

EDWIN WELLES DWIGHT, to be Assistant in Clinical Surgery and Legal Medicine, November 9, 1896.

WILLIAM BRIGGS SAVERY, to be Assistant in Philosophy, November 9, 1896.

JOHN ARCHIBALD FAIRLIE, to be Proctor, November 9, 1896.

PIERRE LA ROSE, to be Proctor, November 9, 1896.

RAYMOND CLARE ARCHIBALD,

DON CARLOS BARRETT,

HARRY AUGUSTUS BIGELOW,

ASA WHITE KENNEY BILLINGS,

JOHN HENRY BOYNTON,

FREDERIC STORY BUNKER,

WALTER BRADFORD CANNON,

RALPH WALDO CONE,

ARTHUR LYONS CROSS,

ARTHUR DURWARD,

JOHN ARCHIBALD FAIRLIE,

} to be Members of the Board of Exami-
nation Proctors, November 9, 1896.

- SIDNEY BRADSHAW FAY,
 JOHN ALLYNE GADE,
 CHARLES SUMNER GRIFFIN,
 FREDERICK ORVILLE GROVER,
 JOHN IRVIN HAMAKER,
 JOSEPH HENRY HATHAWAY,
 HENRY BARRETT LEARNED,
 WILLIAM EDWARD McELFRESH,
 FREDERICK CHASE McLAUGHLIN,
 HERBERT CAMP MARSHALL,
 WILLIAM JOSEPH MILLER,
 WATSON NICHOLSON,
 GEORGE RAPALL NOYES,
 GEORGE BURN RICHARDSON,
 HENRY LINDSAY SANFORD,
 CHARLES EDWARD SEAMAN,
 EDWARD HENRY WARREN,
 HARRY WHITE,
 HENRY LEE,
 WILLIAM STURGIS BIGELOW,
 ARTHUR ASTOR CARR,
 FRANKLIN MORSE ARCHER, to be Instructor in Engineering Contracts, November 30, 1896.
- } to be Members of the Board of Examination Proctors, November 9, 1896.
- } to be Trustees of the Museum of Fine Arts, November 30, 1896.
- ARTHUR STODDARD COOLEY, to be Instructor in Greek, November 30, 1896.
 JOSEPH WILLIAM BLANKINSHIP, to be Assistant in the Botanical Museum, November 30, 1896.
 MERRITT LYNDON FERNALD, to be Assistant in the Herbarium, November 30, 1896.
 JESSE MORE GREENMAN, to be Assistant in the Herbarium, November 30, 1896.
 HUTCHINS HARGOOD, to be Assistant in English, November 30, 1896.
 JULIUS GEORGE WILLIAM WERNER, to be Instructor in Operative Dentistry, December 14, 1896.
 HENRY RICHARDSON LINVILLE, to be a Member of the Board of Examination Proctors, January 11, 1897.
 CLYDE AUGUSTUS DUNSTON, to be Assistant in History, February 8, 1897.
 BEARS WILSON CABELL, to be a Member of the Board of Examination Proctors, March 29, 1897.

For 1897-98.

- EERA RIPLEY TRAYER, to be Instructor in the Peculiarities of Massachusetts Law and Practice, May 24, 1897.
 CHARLES BENJAMIN BARNES, to be Instructor in Suretyship, September 26, 1897.

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- SAMUEL SILAS CUREY, to be Instructor in Elocution, June 14, 1897.
 WILLIAM JAMES, to be Ingersoll Lecturer on the Immortality of Man, February 15, 1897.
 ASAPH HALL, to be Lecturer on Celestial Mechanics, March 8, 1897.
 CHARLES LOWELL YOUNG, to be Instructor in English, April 12, 1897.
 HERBERT MAULE RICHARDS, to be Instructor in Botany, April 12, 1897.

- WILLIAM HENRY SCHOFIELD**, to be Instructor in English, April 14, 1897.
GEORGE ANDREW REISNER, to be Instructor in Semitic, April 26, 1897.
ABBOTT LAWRENCE LOWELL, to be Lecturer on Existing Political Systems, May 10, 1897.
GEORGE HERBERT LOCKE, to be Instructor in The History and Art of Teaching, May 10, 1897.
FRANK RUSSELL, to be Instructor in Anthropology, May 10, 1897.
JAMES SULLIVAN, to be Instructor in History and Palaeography, May 10, 1897.
SAMUEL TRAINER DUTTON, to be Lecturer on the Organization and Management of Schools, May 24, 1897.
RAY GREENE HULING, to be Lecturer on the Organization and Management of Schools, May 24, 1897.
HERBERT VAUGHAN ABBOTT, to be Instructor in English, May 24, 1897.
GREGORY PAUL BAXTER, to be Instructor in Chemistry, May 24, 1897.
NEIL CORNWELL BROOKS, to be Instructor in German, May 24, 1897.
JOHN FIRMEN COAR, to be Instructor in German, May 24, 1897.
RICHARD COBB, to be Instructor in English, May 24, 1897.
THOMAS HALL, to be Instructor in English, May 24, 1897.
JOHN GODDARD HAET, to be Instructor in English, May 24, 1897.
WILLIAM GUILD HOWARD, to be Instructor in German, May 24, 1897.
JAMES EDWIN LOUGH, to be Instructor in Experimental Psychology, May 24, 1897.
HUGO RICHARD METER, to be Instructor in Political Economy, May 24, 1897.
PIERRE LA ROSE, to be Instructor in English, May 24, 1897.
JOHN PERCIVAL SYLVESTER, to be Instructor in Chemistry, May 24, 1897.
WILLIAM EMANUEL WALE, to be Instructor in German, May 24, 1897.
JOHN ALDEN, to be Assistant in English, May 24, 1897.
MARSHALL HENRY BAILEY, to be Assistant in Physiology and Medical Visiting, May 24, 1897.
HENRY HARMON CHAMBERLIN, to be Assistant in English, May 24, 1897.
ROBERT WARREN FULLER, to be Assistant in Chemistry, May 24, 1897.
HUTCHINS HAPGOOD, to be Assistant in English, May 24, 1897.
HENRY BARRETT HUNTINGTON, to be Assistant in English, May 24, 1897.
ALFRED DWIGHT SHEFFIELD, to be Assistant in English, May 24, 1897.
CHARLES HAMILTON ASHTON, to be Instructor in Mathematics, June 14, 1897.
IRVING BARRETT, to be Instructor in French, June 14, 1897.
GEORGE WILLIS BOTSFORD, to be Instructor in the History of Greece and Rome, June 14, 1897.
ALPHONSE BRUN, to be Instructor in French, June 14, 1897.
GUY STEVENS CALLENDER, to be Instructor in Political Economy, June 14, 1897.
WILLIAM ERNEST CASTLE, to be Instructor in Anatomy and Embryology, June 14, 1897.
CHARLES CESTRE, to be Instructor in French, June 14, 1897.
JOHN CUMMINGS, to be Instructor in Political Economy, June 14, 1897.
ROBERT JAY FORSYTHE, to be Instructor in Metallurgy and Metallurgical Chemistry, June 14, 1897.
THOMAS AUGUSTUS JAGGAR, to be Instructor in Geology, June 14, 1897.
ALPHONSE MARIN LA MESLÉE, to be Instructor in French, June 14, 1897.
JAMES GRAY LATHROP, to be Instructor in Athletics, June 14, 1897.
WILLIAM EDWARD MCCLINTOCK, to be Instructor in Highway Engineering, June 14, 1897.

- LIONEL SIMON MARKS, to be Instructor in Mechanical Engineering, June 14, 1897.
- MAURICE WHITTEMORE MATHER, to be Instructor in Latin, June 14, 1897.
- WILLIAM VAUGHAN MOSES, to be Instructor in Mechanical Drawing and Machine Design, June 14, 1897.
- CHARLES PALACHE, to be Instructor in Mineralogy, June 14, 1897.
- HENRY LEE PRESCOTT, to be Instructor in English, June 14, 1897.
- BENJAMIN RAND, to be Instructor in Philosophy, June 14, 1897.
- GEORGE STAPLES RICE, to be Instructor in Sanitary Engineering, June 14, 1897.
- FREDERICK HOLLISTER SAFFORD, to be Instructor in Mathematics, June 14, 1897.
- PRESCOTT ORDE SKINNER, to be Instructor in Italian and Spanish, June 14, 1897.
- LEO WIENER, to be Instructor in Slavic Languages, June 14, 1897.
- JAY BACKUS WOODWORTH, to be Instructor in Geology, June 14, 1897.
- CHARLES HENRY CONRAD WRIGHT, to be Instructor in French, June 14, 1897.
- JOSEPH DANA ALLEN, to be Assistant in History, June 14, 1897.
- JOHN CHARLES STATES ANDREW, to be Assistant in History, June 14, 1897.
- HARRY AUGUSTUS BIGELOW, to be Assistant in Government, June 14, 1897.
- OTIS FISHER BLACK, to be Assistant in Chemistry, June 14, 1897.
- JOSEPH WILLIAM BLANKINSHIP, to be Assistant in the Botanic Museum, June 14, 1897.
- JOHN MASON BOUTWELL, to be Assistant in Physiography, June 14, 1897.
- EDWIN HENRY COLPITTS, to be Assistant in Physics, June 14, 1897.
- EDWIN RUST DOUGLASS, to be Assistant in Physics, June 14, 1897.
- JOHN WINTHROP DOW, to be Assistant in Chemistry, June 14, 1897.
- SIDNEY BRADSHAW FAY, to be Assistant in History, June 14, 1897.
- WINTHROP EDWARDS FISKE, to be Assistant in Physics, June 14, 1897.
- CHARLES SUMNER GRIFFIN, to be Assistant in Political Economy, June 14, 1897.
- ROBERT WILLIAM HALL, to be Assistant in Zoölogy, June 14, 1897.
- STEPHEN UPSHUR HOPKINS, to be Assistant in Surveying and Hydraulics, June 14, 1897.
- HENRY BARRETT LEARNED, to be Assistant in History, June 14, 1897.
- GEORGE RICHARD LYMAN, to be Assistant in Cryptogamic Botany, June 14, 1897.
- THEODORE LYMAN, JR., to be Assistant in Physics, June 14, 1897.
- WILLIAM EDWARD McELFRISH, to be Assistant in Physics, June 14, 1897.
- BENJAMIN SHORES MERIGOLD, to be Assistant in Chemistry, June 14, 1897.
- GEORGE THOMAS MOORE, to be Assistant in Cryptogamic Botany, June 14, 1897.
- JOHN FREDERIC OSBORN, to be Assistant in Mechanical Drawing and Descriptive Geometry, June 14, 1897.
- MAURICE BERTHOLD PEUGHNET, to be Assistant in Applied Mechanics and Experimental Engineering, June 14, 1897.
- WILLIAM MAXWELL REED, to be Assistant in Astronomy, June 14, 1897.
- CHARLES EDWARD SEAMAN, to be Assistant in Government, June 14, 1897.
- FRED CLAYTON WAITE, to be Assistant in Zoölogy, June 14, 1897.
- EDWARD HENRY WARREN, to be Assistant in Political Economy, June 14, 1897.
- STEPHEN EDGAR WHITING, to be Assistant in Electrical Engineering, June 14, 1897.
- STEPHEN RIGGS WILLIAMS, to be Assistant in Zoölogy, June 14, 1897.
- JOSEPH EDMUND WOODMAN, to be Assistant in Geology, June 14, 1897.
- CHARLES HANFORD HENDERSON, to be Lecturer on Manual Training, June 14,

IRA NELSON HOLLIS,
EDWARD HICKLING BRADFORD,
EDWIN HERBERT HALL,
AUGUSTUS PEABODY GARDNER,
WILLIAM ALLEN BROOKS, JR.,
LOUIS ADAMS FROTHINGHAM,

to be a Committee on the Regulation of
Athletic Sports, June 14, 1897.

JOSEPH DANA ALLEN,
GEORGE WYLLIS BENEDICT,
HARRY AUGUSTUS BIGELOW,
WILLIAM FREDERICK BOOS,
WALTER BRADFORD CANNON,
RALPH WALDO CONE,
CHARLES SUMNER GRIFFIN,
FREDERICK ORVILLE GROVER,
STEPHEN UPSHUR HOPKINS,
JOHN HALL JONES,
FRANK LOWELL KENNEDY,
HENRY BARNETT LEARNED,
WILLIAM EDWARD McELFRESH,
FREDERICK CHASE McLAUGHLIN,
EDMUND ROBERT OTTO VON MACH,
VERNON FREEMAN MARSTERS,
WILLIAM JOSEPH MILLER,
GUY MURCHIE,
WILLIAM MAXWELL REED,
GEORGE BURE RICHARDSON,
CHARLES EDWARD SEAMAN,
ALFRED DWIGHT SHEPPFIELD,
PRESCOTT ORDE SKINNER,
FRED CLAYTON WAITE,
HOLLIS WEAVER,

to be Proctors, June 14, 1897.

GEORGE HODGES, to be Preacher to the University, June 29, 1897.

WILLIAM HERBERT PERRY FAUNCE, to be Preacher to the University, June 29,
1897.

WILLIAM WALLACE FENN, to be Preacher to the University, June 29, 1897.

WALTER RAYMOND SPALDING, to be Instructor in Music, June 29, 1897.

ARTHUR STARR EAKLE, to be Assistant in Mineralogy and Petrography, June 29,
1897.

CLARENCE McCHESNEY GORDON, to be Assistant in Physical Chemistry, June 29,
1897.

EDWIN HENRY COLPITTS, to be Proctor, June 29, 1897.

HARRY WHITE, to be Proctor, June 29, 1897.

CHARLES SUMNER HAWES, to be Auditor of the Harvard Dining Association,
July 12, 1897.

GEORGE HARRIS, to be Preacher to the University, September 28, 1897.

WILLIAM DEWITT HYDE, to be Preacher to the University, September 28, 1897.

LE BARON RUSSELL BRIGGS,
JAMES BRADSTREET GREENOUGH,
GEORGE ALONZO BARTLETT,
FRÉDÉRIC CÉSAR DE SUMICHRAST,
JOHN WILLIAMS WHITE,

to be Members of the Administra-
tive Board of Harvard College,
September 28, 1897.

WILLIAM MORRIS DAVIS, EDWARD CHANNING, CHARLES HALL GRANDGENT, WALLACE CLEMENT SABINE, ALFRED BULL NICHOLS, JOSEPH TORREY, JOHN HAYES GARDINER, ARCHIBALD CARY COOLIDGE, BYRON SATTERLEE HURLBUT, CHARLES BENEDICT DAVENPORT, CHARLES BURTON GULICK, NATHANIEL SOUTHGATE SHALER, IRA NELSON HOLLIS, HERBERT LANGFORD WARREN, HENRY LLOYD SMYTH, JAMES LEE LOVE, JOSEPH TORREY, GEORGE WELLS FITZ, COMFORT AVERY ADAMS, GEORGE HOWARD PARKER, JOHN HENRY WRIGHT, CHARLES ELIOT NORTON, HUGO MÜNSTERBERG, WILLIAM GILSON FARLOW, CHARLES LOHRING JACKSON, BENJAMIN OSGOOD PEIRCE, HANS CARL GÜNTHER VON JAGEMANN, ALBERT BUSHNELL HART, WILLIAM JAMES ASHLEY, GEORGE LYMAN KITTREDGE,	to be Members of the Administrative Board of Harvard College, September 28, 1897.
FRANK COLE BABBITT, to be Instructor in Greek, September 28, 1897. GEORGE FREDERICK NEWTON, to be Instructor in Designing and Drawing, September 28, 1897. MERRITT LYNDON FERNALD, to be Assistant in the Herbarium, September 28, 1897. ANDREW GARbutt, to be Assistant in Modelling, September 28, 1897. JESSE MOORE GREENMAN, to be Assistant in the Herbarium, September 28, 1897. WILFRED GEORGE GARNET COLE, to be Assistant in Classics, September 28, 1897. WALTER DANA SWAN, to be Assistant in Architecture, September 28, 1897.	to be Members of the Administrative Board of the Lawrence Scientific School, September 28, 1897.
CYRUS GUERNSEY PRINGLE, to be Botanical Collector, from January 1, 1897, to January 1, 1898, February 15, 1897.	to be Members of the Administrative Board of the Graduate School, September 28, 1897.

SAMUEL HOLMES DURGIN, to be Lecturer on Hygiene, June 14, 1897.
THEODORE WILLIS FISHER, to be Lecturer on Mental Diseases, June 14, 1897.
VINCENT YARDLEY BOWDITCH, to be Instructor in Clinical Medicine, June 14, 1897.
JOHN TEMPLETON BOWEN, to be Instructor in Dermatology, June 15, 1897.

- EDWARD MARSHALL BUCKINGHAM, to be Instructor in Diseases of Children, June 14, 1897.
- ELBRIDGE GERRY CUTLER, to be Instructor in The Theory and Practice of Physic, June 14, 1897.
- WILLIAM WHITWORTH GANNETT, to be Instructor in Clinical Medicine, June 14, 1897.
- ELISHA HALL GREGORY, to be Instructor in Histology and Embryology, June 14, 1897.
- GEORGE HAVEN, to be Instructor in Gynaecology, June 14, 1897.
- HENRY JACKSON, to be Instructor in Clinical Medicine, June 14, 1897.
- JOHN HILDEBRETH MCCOLLUM, to be Instructor in Contagious Diseases, June 14, 1897.
- GEORGE HOWARD MONKS, to be Instructor in Clinical Surgery, June 14, 1897.
- JOHN CUMMINGS MUNRO, to be Instructor in Clinical Surgery, June 14, 1897.
- FRANZ PFAFF, to be Instructor in Pharmacology, June 14, 1897.
- CHARLES ALLEN PORTER, to be Instructor in Surgery, June 14, 1897.
- ABNER POST, to be Instructor in Syphilis, June 14, 1897.
- HENRY PARKER QUINCY, to be Instructor in Histology, June 14, 1897.
- EDWARD REYNOLDS, to be Instructor in Obstetrics, June 14, 1897.
- GEORGE GRAY SEARS, to be Instructor in Clinical Medicine, June 14, 1897.
- EDWARD WYLLIS TAYLOR, to be Instructor in Neuro-Pathology, June 14, 1897.
- BENJAMIN TENNEY, to be Instructor in Anatomy, June 14, 1897.
- HERMAN FRANK VICKERY, to be Instructor in Clinical Medicine, June 14, 1897.
- FRANCIS SEDGWICK WATSON, to be Instructor in Genito-Urinary Surgery, June 14, 1897.
- CHARLES FRANCIS WITHINGTON, to be Instructor in Clinical Medicine, June 14, 1897.
- JAMES HOMER WRIGHT, to be Instructor in Pathology, June 14, 1897.
- ALDERNON COOLIDGE, to be Clinical Instructor in Laryngology, June 14, 1897.
- EDWARD COWLES, to be Clinical Instructor in Mental Diseases, June 14, 1897.
- THOMAS AMORY DE BLOIS, to be Instructor in Clinical Laryngology, June 14, 1897.
- JOHN WOODFORD FARLOW, to be Clinical Instructor in Laryngology, June 14, 1897.
- GEORGE WASHINGTON GAY, to be Clinical Instructor in Surgery, June 14, 1897.
- JOHN HOMANS, to be Clinical Instructor in the Diagnosis and Treatment of Ovarian Tumors, June 14, 1897.
- PHILIP COOMBS KNAPP, to be Clinical Instructor in Diseases of the Nervous System, June 14, 1897.
- MORTON PRINCE, to be Clinical Instructor in Diseases of the Nervous System, June 11, 1897.
- GEORGE LINCOLN WALTON, to be Clinical Instructor in Diseases of the Nervous System, June 14, 1897.
- EDWARD HALL NICHOLS, to be Demonstrator of Surgical Pathology, June 14, 1897.
- ALFRED LUDWIG THEODOR SCHAPER, to be Demonstrator of Histology and Embryology, June 14, 1897.
- JOHN LINCOLN AMES, to be Assistant in Histology, June 14, 1897.
- NEWTON SAMUEL BACON, to be Assistant in Chemistry, June 14, 1897.
- WALTER BAUMGARTEN, to be Assistant in Physiology, June 14, 1897.
- JOHN BAPT BLAKE, to be Assistant in Anatomy, June 14, 1897.
- FREDERICK EDWARD CHENEY, to be Assistant in Ophthalmology, June 14, 1897.

WILLIAM MERRITT CONANT, to be Assistant in Clinical and Operative Surgery, June 14, 1897.

JOHN NELSON COOLIDGE, to be Assistant in Bacteriology, June 14, 1897.

GEORGE ARTHUR CRAIGIN, to be Assistant in Diseases of Children, June 14, 1897.

EUGENE ANTHONY CROCKETT, to be Assistant in Otology, June 14, 1897.

JOSEPH JAMES CURRY, to be Assistant in Pathology, June 14, 1897.

EUGENE ABRAHAM DARLING, to be Assistant in Bacteriology, June 14, 1897.

GEORGE CARROLL DOLLIVER, to be Assistant in Obstetrics, June 14, 1897.

EDWIN WELLES DWIGHT, to be Assistant in Clinical Surgery and Legal Medicine, June 14, 1897.

CARL ADOLPH EWALD, to be Assistant in Chemistry, June 14, 1897.

LANGDON FROTHINGHAM, to be Assistant in Pathology, June 14, 1897.

PHILIP HAMMOND, to be Assistant in Otology, June 14, 1897.

HENRY FOX HEWES, to be Assistant in Chemistry, June 14, 1897.

EDWIN EVERETT JACK, to be Assistant in Ophthalmology, June 14, 1897.

JAMES OSCAR JORDAN, to be Assistant in Materia Medica, June 14, 1897.

AUGUSTUS SMITH KNIGHT, to be Assistant in Clinical Medicine, June 14, 1897.

ROBERT GARDNER LORING, to be Assistant in Anatomy, June 14, 1897.

HOWARD AUGUSTUS LOTHROP, to be Assistant in Anatomy, June 14, 1897.

ROBERT WILLIAMSON LOVETT, to be Assistant in Clinical Surgery, June 14, 1897.

FRED BATES LUND, to be Assistant in Anatomy, June 14, 1897.

SAMUEL JASON MIXTER, to be Assistant in Operative Surgery, June 14, 1897.

GEORGE HOWARD MONKS, to be Assistant in Operative Surgery, June 14, 1897.

JOHN LOVETT MORSE, to be Assistant in Clinical Medicine, June 14, 1897.

JAMES GREGORY MUMFORD, to be Assistant in Clinical Surgery, June 14, 1897.

LOUIS JACOB JOZEF MUSKENS, to be Assistant in Physiology, June 14, 1897.

FRANKLIN SPILMAN NEWELL, to be Assistant in Obstetrics, June 14, 1897.

EDWARD HALL NICHOLS, to be Assistant in Pathology, June 14, 1897.

JAY BERGEN OGDEN, to be Assistant in Chemistry, June 14, 1897.

CHARLES FAIRBANK PAINTER, to be Assistant in Surgical Pathology, June 14, 1897.

EDWARD REYNOLDS, to be Assistant in Gynaecology, June 14, 1897.

CHARLES LOCKE SCUDDER, to be Assistant in Clinical and Operative Surgery, June 14, 1897.

MYLES STANDISH, to be Assistant in Ophthalmology, June 14, 1897.

COLIN CAMPBELL STEWART, to be Assistant in Physiology, June 14, 1897.

ARTHUR KINGSBURY STONE, to be Assistant in Bacteriology, June 14, 1897.

JOHN BAKER SWIFT, to be Assistant in Gynaecology, June 14, 1897.

PAUL THORNDIKE, to be Assistant in Genito-Urinary and Clinical Surgery, June 14, 1897.

ARTHUR HOWARD WENTWORTH, to be Assistant in Pathology and Diseases of Children, June 14, 1897.

ROBERT SESSIONS WOODWORTH, to be Assistant in Physiology, June 14, 1897.

CHARLES MONTRAVILLE GREEN, to be Secretary of the Medical Faculty, June 29, 1897.

DWIGHT MOSES CLAPP, to be Clinical Lecturer in Operative Dentistry, June 14, 1897.

GEORGE HOWARD MONKS, to be Instructor in Surgical Pathology, June 14, 1897.

PATRICK WILLIAM MORIARTY, to be Instructor in the Mechanical Treatment of Fractured Jaws and Cleft Palate, June 14, 1897.

GEORGE LINCOLN WALTON, to be Instructor in Neurology, June 14, 1897.

JULIUS GEORGE WILLIAM WERNER, to be Clinical Instructor in Operative Dentistry, June 14, 1897.

HARRY OLIVER BIXBY,

ALLEN STANLEY BURNHAM,

ASHER HARRIMAN ST. CLAIR CHASE,

HAROLD DEWITT CROSS,

ARTHUR WARREN ELDRED,

THOMAS BERNARD HAYDEN,

HARRY WEST HALEY,

ARTHUR HENRY STODDARD,

EDWIN CARTER BLAISDELL,

FREDERICK BRADLEY,

FORREST GREENWOOD EDDY,

EDWIN LINWOOD FARRINGTON,

HARVEY WINCHESTER HARDY,

ELZA FLETCHER TAFT,

FRANK TURNER TAYLOR,

HENRY LAURISTON UPHAM,

to be Instructors in Mechanical Dentistry, June 14, 1897.

to be Instructors in Operative Dentistry, June 14, 1897.

PATRICK WILLIAM MORIARTY, to be Demonstrator of Mechanical Dentistry, June 14, 1897.

JOSEPH TOTTEN PAUL, to be Demonstrator of Operative Dentistry, June 14, 1897.

DWIGHT WARD DICKINSON, to be Assistant Demonstrator of Operative Dentistry, June 14, 1897.

ROBERT JOHN McMERKIN, to be Assistant Demonstrator of Mechanical Dentistry, June 14, 1897.

NATHAN PRINDLE WYLLIS, to be Assistant Demonstrator of Operative Dentistry, June 14, 1897.

NEWTON SAMUEL BACON, to be Assistant in Chemistry, June 14, 1897.

WALDO ELIAS BOARDMAN, to be Instructor in Operative Dentistry, June 29, 1897.

GEORGE BROWN FOSS, to be Lecturer on Diseases of Dogs and Resident Hospital Surgeon, June 14, 1897.

WILLIAM ORISON UNDERWOOD, to be Lecturer on Warrant and Evidence, June 14, 1897.

LESTER HEARD HOWARD, to be Clinical Lecturer, June 14, 1897.

PATRICK JAMES CROHON, to be Instructor and Assistant Surgeon at the Charity Hospital, June 14, 1897.

FRANK INGERSOLL PROCTOR, to be Instructor in Ophthalmology, June 14, 1897.

ALBERT JAMES SHELTON, to be Instructor in Materia Medica and Meat Inspection and Assistant Surgeon at the Hospital, June 14, 1897.

LANGDON FROTHINGHAM, to be Assistant in Pathology, June 14, 1897.

ELISHA HALL GREGORY, to be Assistant in Histology, June 14, 1897.

WESLEY LEVI LABAW, to be Demonstrator and Assistant Instructor in Comparative Anatomy, Assistant Surgeon at the Hospital, and Curator of the Veterinary Museum, June 14, 1897.

ELISHA WILSON MORSE, to be Instructor in Natural History, May 10, 1897.

JAMES REVERDY STEWART, to be Assistant in Applied Zoölogy, June 14, 1897.

WINFRED WAITE BRAMAN, to be Assistant in Chemistry, June 29, 1897.

THE TRANSFER OF THE PEABODY MUSEUM.

This indenture made this first day of January A.D. 1897, by and between the Trustees of the Peabody Museum of American Archaeology and Ethnology hereinafter called the Trustees, parties of the first part, and the President and Fellows of Harvard College, hereinafter called the Corporation, parties of the second part, witnesseth :

Whereas George Peabody did by deed dated October 8th, 1866, convey to certain persons, thereby created the Trustees of the Peabody Museum of American Archaeology and Ethnology in connection with Harvard University, and their successors, certain property in trust for the foundation and maintenance of said Museum, and for the endowment of the Peabody Professorship of American Archaeology and Ethnology in the said University, and for other purposes ; and

Whereas on October 27, 1866, the Corporation assented to the terms of the said trust ; and

Whereas in accordance with the terms of the said deed of trust, a building has been erected for the purposes of the Museum, and large collections have been made which are now placed therein ; and

Whereas, on October 1, 1890, Mrs. Mary Copley Thaw conveyed to the Trustees certain property for the establishment and maintenance of the Thaw Fellowship in the said University and for other purposes ; and

Whereas on June 1, 1891, Mrs. Mary Hemenway conveyed to the Trustees certain property for the establishment and maintenance of the Hemenway Fellowship in the said University ; and

Whereas Roger Wolcott, acting in accordance with the provisions of the will of J. Huntington Wolcott did, on June 1, 1891, appoint and give to the Corporation certain property the income of which is to be expended by the Trustees for the promotion of archaeological and ethnological research and for other purposes ; and

Whereas by the will of Robert C. Winthrop certain property was bequeathed to the Corporation for the establishment of the Winthrop Scholarship in the said University, which gift was received December 31, 1894 ; and

Whereas it has been deemed advisable that the ownership, management and control of the said Museum and collections, funds and other property held for the purposes of the said Museum and otherwise should be united in the hands of the Corporation ; and

Whereas the Legislature of Massachusetts has by Chapter one hundred and ninety-one of the Acts of the year eighteen hundred and ninety-six authorized the Trustees to convey all the property in their hands to the Corporation upon the same trusts on which it is now held by the Trustees, and upon such other trusts not conflicting or inconsistent therewith as the Trustees and the Corporation may agree upon,

Now Therefore, in consideration of the premises, the Trustees do hereby convey, remise, release and forever quit claim to the Corporation all the buildings, Museum, collections, stocks, bonds, money, funds, accumulations and property of whatsoever name and nature held by them or to which they are in any manner entitled as Trustees.

To Have And To Hold the granted premises to them, the Corporation, their successors and assigns, to their use forever; but in trust, nevertheless, to hold the said property for the uses and purposes for which and subject to the duties and trusts upon which the granted premises are held by the Trustees, and upon the further trusts and agreements set forth in the articles appended hereto; and the Corporation accepts the property herein conveyed upon the trusts aforesaid.

In Witness Whereof the Trustees have hereunto set their hands and seals and the Corporation has caused its corporate seal to be hereto affixed and these presents to be signed by E. W. Hooper, its Treasurer the day and year first above written.

(Signed)

*Trustees of the
Peabody Museum of
American Archaeology
and Ethnology.*

CHARLES FRANCIS ADAMS,
President Massachusetts Historical Society.
ROBERT S. RANTOUL,
President Essex Institute.
STEPHEN SALISBURY,
President American Antiquarian Society.
ALEXANDER AGASSIZ,
President American Academy of Arts and Sciences.
WILLIAM H. NILES,
President Boston Society of Natural History.
FRANCIS C. LOWELL,
SAMUEL H. SCUDDER.

ARTICLES OF AGREEMENT.

For the government of the Peabody Museum of American Archaeology and Ethnology, made by the President and Fellows of Harvard College, and the Trustees of said Museum.

First. The Peabody Professor of American Archaeology and Ethnology and the Curator of the Peabody Museum shall have the rights and powers given and shall be subject to the duties imposed by the deed of gift of Mr. George Peabody.

Second. Subject to the provisions of the first Article the Museum shall be in the immediate charge of a faculty responsible only to the Corporation and the Overseers.

Third. The President of the College shall be the President of the Faculty, and the Peabody Professor or Curator of the Museum shall be a member thereof. Vacancies in the Faculty caused by the death or resignation of a member thereof other than the President and the Peabody Professor or the Curator, shall be filled by nominations made by the Faculty and confirmed by the Corporation.

Fourth. The first Faculty shall consist, in addition to the President and the Peabody Professor or Curator, of the following persons: Stephen Salisbury, Charles P. Bowditch, and Francis C. Lowell.

Fifth. The Peabody Professor of American Archaeology and Ethnology and the Curator of the Museum shall be nominated by the Faculty to the Corporation, appointed by the Corporation and confirmed by the Overseers.

Sixth. The Faculty shall appoint all assistants and other officers employed in the Museum, but if an assistant or other officer shall give instruction to students of the University, his appointment shall be confirmed by the Corporation and, if the Statutes so require, by the Overseers.

Seventh. The Faculty shall, subject to confirmation by the Corporation, nominate the holders of the Thaw and Hemenway Fellowships and the Winthrop Scholarship.

Eighth. The Faculty may, in its direction subject to the terms of the several deeds of gift, expend the sums which shall be placed at its disposal by the Corporation.

Ninth. The principal of the Building Fund may be expended by the Faculty with the approval of the Corporation.

Tenth. These articles may be added to or varied by the Corporation and Overseers within the terms of the several deeds of gift under which the property is held.

CHILD MEMORIAL FUND.

At a meeting of the President and Fellows of Harvard College in Cambridge, June 29th, 1897, a letter from Mr. L. B. R. Briggs and others, of which the following is a partial copy was submitted to the Board:—

“HARVARD UNIVERSITY,
“CAMBRIDGE, MASS., June 9th, 1897.

“THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE:—

“We have the honor to transmit to you the sum of one hundred and ninety-five dollars and fifty cents (\$195.50), being the balance of the amount subscribed to establish an endowment in memory of the late Francis James Child formerly Professor of English in the University, over and above the sum of ten thousand, six hundred dollars (\$10,600) formerly sent you by us.

“At the same time, we desire, on behalf of the subscribers, to state more fully than in our letter to you of February 1st (accompanying the first instalment of money subscribed), what are the conditions attached to the gift. These conditions are:—

“First, that the ten thousand, seven hundred and ninety-five dollars and fifty cents (\$10,795.50), and whatever additional sums may be paid

over to the Corporation on account of the Fund, shall be invested and held as an endowment fund, under the name of "The Francis James Child Memorial Fund.

"*Second*, that the principal of this endowment fund shall be maintained at ten thousand, seven hundred and ninety-five dollars and fifty cents, or whatever maximum amount it may reach by additional subscriptions paid in to the Corporation hereafter; and if at any time it should become necessary for this purpose, the whole or any part of the income derived from the fund, shall at the discretion of the Treasurer of the University be retained and added to the original Fund.

"*Third*, that all the income from the Fund not so retained for the purpose of maintaining the principal of the endowment, as above provided, shall be expended in the purchase of books and manuscripts relating to the study of English, and in their maintenance in a proper state of binding and repair.

"*Fourth*, that in every book or manuscript purchased with the income of this Fund, shall be inserted a book-plate, indicating that the book or manuscript is a part of the Child Memorial Library.

"*Fifth*, that the choice of the books or manuscripts to be purchased, the decision of when and in what manner they shall be rebound or repaired, the selection of the book-plate, and the determination of other details in regard to the expenditure of the income of the Fund, shall be made by the Department of English in the University; it being the intention of the givers that the control of the income of this Fund, except such portion thereof as may be retained by the Treasurer of the University as above provided, shall remain in the hands of such members of the Faculty of Arts and Sciences of the University, or of any other body or bodies succeeding to its powers and duties, as are engaged in the teaching of English.

"We further append, for purposes of record, a list of the subscribers to this Fund, and a copy of the book-plate which has been provided by the Department to mark each book and manuscript."

(Signed)

L. B. R. BRIGGS
BARRETT WENDELL
G. L. KITTEDGE

J. H. GARDNER
AUGUSTIN H. PARKER
EDGAR H. WELLS

and the Deputy Treasurer reported the receipt of said sum of one hundred and ninety-five dollars and fifty cents and a further sum of twenty-five dollars. It was thereupon

Voted, that the terms named in said letter be accepted as those upon which the Child Memorial Fund is established, in place of those named in the letter from the Committee, dated February 1, 1897, and entered in the record of the meeting of this Board on February 8, 1897; but subject to the conditions of the standing votes of the Corporation, passed December 13, 1880, concerning the regulation of the purchase and care of books belonging to the several departments of the University.

ILLNESS REPORT, 1896-97.

Diseases.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total.
Colds, etc.	79	97	117	106	102	198	114	69	4	931
Scarlet Fever . . . . .	..	..	..	..	1	..	2	1	..	4
Diphtheria . . . . .	..	..	2	..	..	..	..	..	..	2
Typhoid Fever	6	2	..	1	..	..	..	..	..	9
Measles	2	2	1	4	11	5	6	15	1	47
Mumps . . . . .	..	..	1	..	1	1	1	4	3	11
Headache	5	17	11	16	12	15	5	10	..	88
Overwork	2	2	1	2	1	4	3	1	..	19
Injuries	18	25	8	11	18	9	11	7	2	104
"At Home," etc.	7	9	10	6	8	11	10	4	4	68
Miscellaneous*	72	108	95	74	52	123	118	83	10	785
Total	191	262	243	220	234	360	240	194	24	2018
Cases carried over each month . . . . .	..	111	47	61	23	117	69	27	29	
Total	191	300	290	281	257	477	359	211	11	
Number days illness	1111	1906	1619	1265	1011	2780	1833	1419	86	
Average days confinement	5.1	6.3	5.6	4.5	7.8	5.8	5.1	6.4	1.6	
Av. number ill at one time	31.1	63.3	70.4	42.2	71.3	89.6	76.3	45.8	2.9	
Maximum number ill at one time over three days	52	75	78	111	111	120	106	51	27	
No. who went home, including cases carried over in ()	48	82	69	74	87	127	139	91	19	
No. who stayed in C. including cases carried over in ()	148	218	221	207	170	350	220	130	11	
No. non-contagious diseases in C.	145	218	219	205	165	347	211	120	30	
No. contagious diseases in C.	3	..	2	2	5	3	2	10	4	
Av. number ill at one time in C.	24.3	46.3	53.6	31.1	47.2	65.9	46.6	22.8	1.9	
Max. number ill at one time in C. over three days	30	39	46	33	73	72	57	26	16	
Visits to students in rooms										1159
Calls at rooms, students out										216
Consultations at Claverly 11, and at L. S. S.										1047

* These are cases of Appendicitis, Eye, Heart, Malaria, Neuralgia, Rheumatism, Stomach and Intestine (except Typhoid), Vaccination, etc.

**NUMBER OF MEN WHO PASSED IN 1896-97 THE PHYSICAL EXAMINATION
REQUIRED OF PARTICIPANTS IN THE VARIOUS SPORTS.**

	Class of '97.	Class of '98.	Class of '99.	Class of '00.	Spec.	Sci.	Grad.	Law.	Med.	Total.
Football	14	19	17	21	1	28	2	3	..	108
Baseball	7	17	16	10	4	5	..	..	..	59
Rowing	8	15	6	12	1	11	..	3	..	56
Track Athletics	18	22	28	30	2	19	1	11	2	138
Cricket	6	4	..	1	..	..	1	1	1	14
Lacrosse	3	2	3	..	..	5	..	3	..	16
Fencing	1	1	..	..	..	1	..	..	..	3
Ice Polo	1	1	1	..	..	1	..	..	..	4
Golf	4	1	3	..	..	..	..	..	..	8
Football & Baseball	3	4	3	3	..	2	..	1	1	17
Football & Rowing	2	3	6	6	..	3	..	..	..	20
Football & Track Athletics .	3	5	5	2	..	6	..	..	..	21
Football & Cricket . . . .	..	..	..	..	1	..	..	..	..	1
Football & Golf . . . . .	..	1	..	..	..	..	..	..	..	1
Baseball & Track Athletics	1	1	1	..	..	1	..	1	..	5
Baseball & Cricket	2	..	..	1	..	..	..	..	..	3
Baseball & Golf . . . . .	..	..	..	1	..	..	..	..	..	1
Rowing & Track Athletics .	..	1	..	3	..	..	..	..	..	4
Track Athletics & Cricket .	..	1	..	..	..	..	..	..	..	1
Track Athletics & Lacrosse	..	1	..	..	..	..	..	..	..	1
Cricket & Lacrosse . . . .	..	1	..	..	..	..	..	..	..	1
Football, Baseball, & Row.	1	..	..	..	..	..	..	..	..	1
F. B., B. B., & Tr. Ath. . .	1	..	..	1	..	3	..	..	..	5
Football, Rowing, & Cricket	1	..	..	..	..	..	..	..	..	1
Football, Baseball, & Polo	..	..	..	1	..	..	..	..	..	1
Football, Cricket, & Tr. Ath.	..	..	..	..	..	1	..	..	..	1
Baseball, Track Ath. & Golf	..	..	1	..	..	..	..	..	..	1
	71	100	90	92	■	86	4	23	■	479
The total last year was										418

REGULATIONS ON ATHLETICS.

ARTICLE I.

THE COMMITTEE.

RULE 1. The Committee on the Regulation of Athletic Sports (hereinafter called the "Athletic Committee" and "the Committee") has entire supervision and control of all athletic exercises within and without the precincts of the University, subject to the authority of the Faculty of Arts and Sciences, as defined by the Statutes.

RULE 2. The officers of the Committee are a Chairman and a Secretary. The Committee appoints a Graduate Treasurer, who exercises supervision over the accounts of all athletic organizations using University grounds or buildings. The Committee through its Treasurer has entire control over the disposition of the athletic fund.

RULE 3. The Committee exercises a general supervision over the grounds and buildings devoted by the University to athletic sports and exercises. Each member of the Committee is at any time entitled to admission to every such ground or building.

RULE 4. Stated meetings of the Committee are held on the 1st Tuesday of each month during term time; and special meetings are held at the call of the Chairman, and shall be called on the written request of two members. Notice of special meetings shall be sent two days at least before the time of meeting. Four members of the Committee shall constitute a quorum for the transaction of business.

RULE 5. Any student of the University is entitled to present at any stated meeting of the Committee a petition the granting of which would lie within the jurisdiction of the Committee, and to be heard in support thereof.

ARTICLE II.

RULES OF ELIGIBILITY.

RULE 1. No one shall be allowed to represent Harvard University in any public athletic contest, either individually or as a member of any team, unless he can satisfy the Committee on the Regulation of Athletic Sports that he is, and intends to be throughout the College year, a *bona fide* member of the University, taking a full year's work.

RULE 2. No student on probation can take part in any public athletic contest. A student who is dropped for neglect of his studies into a lower

class shall be debarred from taking part in any intercollegiate contests until the end of the next academic year, or until he produces from the Faculty satisfactory evidence that he has made up all the deficiencies which stand in the way of his restoration to his original class.

RULE 3. No one who is not a regular student in the College or Scientific School, and no regular student in either of these departments who has ever played in any intercollegiate contest upon a class or university team of any other college, shall play upon a Harvard team until he has resided one academic year at the University and passed the annual examinations upon a full year's work.

RULE 4. No student shall be allowed to represent Harvard University in any public athletic contest, either individually or as a member of any team, who, either before or since entering the University, shall have engaged for money in any athletic competition, whether for a stake, or a money prize, or a share of the entrance fees or admission money; or who shall have taught or engaged in any athletic exercise or sport as a means of livelihood; or who shall at any time have received for taking part in any athletic sport or contest any pecuniary gain or emolument whatever, direct or indirect, with the single exception that he may have received from the College organization, or from any permanent amateur association of which he was at the time a member, the amount by which the expenses necessarily incurred by him in representing his organization in athletic contests exceeded his ordinary expenses.

RULE 5. No student, whether he has represented one or more colleges shall take part in intercollegiate contests for more than four years.

In this Rule the term "College" includes:—

1. All institutions called colleges and authorized to confer a bachelor's degree which admits to the Sophomore Class of Harvard College.
2. All scientific and professional schools authorized to confer an equivalent degree.
3. The Military Academy at West Point and the Naval Academy at Annapolis, etc.

RULE 6. No student shall take part in any public athletic contest without the previous permission of the Director of the Gymnasium, based upon such physical examination as may be required.

Violation of this rule debars a student from all further participation in public athletic contests, whether confined to students of the University or not, until he is reinstated by vote of the Committee.

RULE 7. No student shall become a candidate for any crew unless he is able to swim.

RULE 8. No one shall be a member of a Freshman team or crew except one who has not passed more than a year in any University, and is either a member of the Freshman Class of the Academic or Scientific department in his first year of residence, or a first-year special student in one of those departments.

RULE 9. Each student shall continue to take part in the Class team or crew of the Class with which he originally entered the University; provided that any student may be assigned to another class team or crew by special vote of the Committee for cause shown.

ARTICLE III.

SCHEDULES AND GAMES.

RULE 1. No schedule of match games, races, or athletic exhibitions, arranged by any athletic organization, shall take effect until it has been approved by the Committee; and no game shall be played unless it has been thus approved.

RULE 2. No match games, races, or athletic exhibitions, whether confined to students of the University or not, shall take place in Cambridge except after the last recitation hour on Saturday, or after four o'clock in the afternoon on other days.

RULE 3. All match games, races, or athletic exhibitions outside of Cambridge shall take place upon Saturday, unless permission for another day is first obtained from the Committee in writing.

RULE 4. No game shall be played away from Cambridge during an examination period, if it may cause the absence from an examination of any student taking part in the game.

RULE 5. All contests shall take place, so far as possible, upon college grounds.

RULE 6. Team practice is not permitted during the summer.

ARTICLE IV.

CAPTAINS AND MANAGERS.

RULE 1. The Captain of each University team shall be elected at the close of its season by written ballot. No player who did not take part in the most important contest or contests of the season shall vote. The retiring Captain shall call and preside over the meeting and none but voters shall be present. The Athletic Committee shall have power to annul the election of Captain at any time.

RULE 2. The Rules governing the election of Captains of the University teams shall also govern the election of Captains of Class teams, with the following exceptions; only those players who took part in any Class or Intercollegiate game as member of a Class team may vote for Captain. The Captain of each Freshman team shall be elected by such candidates for the team as the Captain of the University team may designate; the Captain of the University team may, however, appoint a temporary Captain.

RULE 3. The Coach and Manager of each team shall be appointed by the Captain of the team, and shall be approved by the Athletic Committee.

The President of the Harvard Athletic Association shall however be *ex officio* manager of the track team.

RULE 4. Captains and officers of the various athletic organizations will be held responsible for the observance by members of their organizations, of these rules and of such further regulations as may be communicated to them by the Committee.

The Captain is held especially responsible for the enforcement of the regulation as to physical examinations; and for the decorum of his team while training and while taking part in contests.

RULE 5. The name of each candidate for a team or crew shall be submitted to the Chairman by the Captain before he is allowed to take part in any contest. The Captain shall not allow a student to take part in a contest unless his name has been so submitted during the playing season.

RULE 6. The Captain is required, on the day after a match or contest, to furnish to the Chairman a list of those who took part as members of his team, preferably on the blank form supplied by the Committee. In case the contest took place out of Cambridge, there shall also be included in the list the names of all men who accompanied the team as substitutes. [The names should be arranged *alphabetically*, and initials and collegiate standing should be accurately given. By arrangement between the Committee and the Recorder, this list will serve also in place of notice of intended absence and explanation of absence required by the Regulations of Harvard College; but no student is thereby released from his responsibility to his instructors or to any Faculty or Administrative Board. Absence from Cambridge is no excuse for delay in handing in written work.]

RULE 7. Before taking a team out of town (except on Saturday afternoon for that day only), it will be necessary for the Captain in each case to obtain a written authorization from the Chairman, upon the blank form provided for the purpose. Immediately on his return the Captain must fill out that part of the blank showing the time of departure and return, and he must send the whole to the Chairman.

RULE 8. The Manager of each team shall consult the Chairman before arranging any contests; and shall not arrange any contest, except with the team of a college or university, without express permission first obtained from the Chairman.

ARTICLE V.

THE USE OF THE "H."

RULE 1. No student shall be allowed to use the letter "H" in such a way as to appear to be a player on a Harvard team except in accordance with the following rules.

RULE 2. *Baseball and Football.* — A sweater having the "H" shall be issued to every player who has already played in an important game as a

member of the University team. The Captain of the team in consultation with the Chairman of the Athletic Committee shall determine which are the important games.

RULE 3. Crew. — A sweater having the "H" shall be issued to every member of the crew, to the coxswain, and to the substitutes. The "H" shall be kept by all holders of sweaters.

RULE 4. Track Athletics. — A sweater having the "H" shall be issued to every man on the team who has won a point in the Mott Haven or Dual Games. Every other member of the team shall have a sweater with "H. A. A."

RULE 5. Hatbands shall be issued to the managers of the teams and to the wearers of the "H."

RULE 6. In order to distinguish clearly between the different teams, the following colors have been adopted.

Foot-ball	Black sweater with red H.
Base-ball	Red sweater with black H.
Crew	White sweater with red H.
Track team	Red sweater with white H.

ARTICLE VI.

GENERAL REGULATIONS.

RULE 1. No person shall assume the functions of trainer or instructor in athletics upon the grounds or within the buildings of the University, without authority in writing from the Committee; and no trainer or coach shall receive any compensation for his services, unless regularly appointed as a college official by the President and Fellows of Harvard College.

RULE 2. Any athletic organization making use of University buildings or grounds for match games, races, or athletic exhibitions, will be held responsible for the good order of participants and spectators during the time of occupancy.

RULE 3. No candidate for membership in any athletic team shall run for exercise on the sidewalk of any public street in Cambridge, or in any public place while scantily clad.

NUMBER OF ORDINARY DEGREES IN 1897.

Bachelors of Arts of the Class of 1897	381
Bachelors of Arts out of course	19
Bachelors of Science	25
Bachelors of Science out of course	2
Bachelors of Agricultural Science	2
Bachelors of Divinity	4
Bachelors of Law	102
Bachelors of Law out of course	2
Doctors of Medicine	72
Doctors of Medicine out of course	2
Doctors of Dental Medicine	32
Doctors of Science	1
Doctors of Veterinary Medicine	20
Masters of Arts	107
Masters of Arts out of course	2
Doctors of Philosophy	25
Total	798

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TREASURER'S STATEMENT.

1897.

TREASURER'S STATEMENT.

TO THE BOARD OF OVERSEERS OF HARVARD COLLEGE:—

The Treasurer of the College submits the Annual Statement of the financial affairs of the University, for the year ending July 31, 1897, in the usual form.

The Funds separately invested, with the income thereof, are as follows:—

	UNIVERSITY.	Principal. July 31, 1897.	Income.
George B. Dorr Fund,			
University Houses and Lands,		\$115,966.56	\$5,450.45
Francis E. Parker Fund,			
University Houses and Lands,		113,817.44	5,349.40
John O. Gray Fund,			
University Houses and Lands,		25,000.00	1,175.00
Joseph Lee Fund,			
University Houses and Lands,		10,000.00	470.00
Insurance and Guaranty Fund,			
University Houses and Lands,		141,638.74	6,588.84
Stock Account (part of),			
University Houses and Lands,		73,823.62	1,824.16
John Cowdin Fund,			
Real Estate in Boston,		22,000.00	1,928.38
Walter Hastings Fund,			
Real Estate in Cambridge,		20,000.00	1,054.25
Harvard Ellis Fund,			
8,000 Little Rock & Fort Smith R. R. 1st M. 7's,		2,670.00	105.00
1,000 Kansas City, Fort Scott & Memphis R. R.			
1st M. 6's,		770.00	30.00
5,000 Kansas Equipment 1st M. 5's,		3,500.00	125.00
10,000 Current River R. R. 1st M. 5's,		5,000.00	
3,000 Chicago, Burl. & Quincy R. R. Conv. 5's,		2,996.25	
220 shares Chicago, Burl. & Quincy R. R. . .		15,867.50	220.00
COLLEGE.			
Stoughton Scholarship (part of),			
Real Estate in Dorchester,		1,294.30	100.00
Pennoyer Scholarships (part of),			
Pennoyer Annuity in England,		4,444.44	134.20
Jonathan Phillips' Gift,			
\$10,000 City of Boston 3½'s,		10,000.00	350.00
Samuel Ward's Gift,			
Ward's (Bumkin) Island, Boston Harbor, . . .		1,200.00	25.00
Scholarships of the Class of 1856,			
\$10,000 Frem., Elkhorn & Mo. Valley R.R. 6's, . .		10,000.00	600.00
Amounts carried forward,		<u>\$579,988.85</u>	<u>\$25,529.68</u>

Amounts brought forward, \$579,988.85 \$25,529.68

LIBRARY.

Ishabod Tucker Fund (part of),
Policy of Mass. Hospital Life Insurance Co., 5,000.00 200.00

MEDICAL SCHOOL.

Henry Willard Williams Fund,
100 shares State Street Exchange, 11,000.00 430.00
87 " American Bell Telephone Co., 7,400.00 565.17
22 " Calumet & Hecla Mining Co., 6,600.00 880.00

MUSEUM OF COMPARATIVE ZOOLOGY.

Agassiz Memorial Fund (part of),
Advances for new building, 5,873.70 517.80

PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

Peabody Professor Fund,
\$54,000 Kansas & Missouri R. R. 1st M. 5's (part of), 19,218.64 519.42
36,000 Chicago, Burl. & Quincy R. R., D. E. 4's
(part of), (sold during year), 222.78
10,000 Worcester Cons. Street Railway 5's (part
of), (sold during year), 88.52
Peabody Collection Fund,
\$54,000 Kansas & Missouri R. R. 1st M. 5's (part of), 19,218.64 519.42
36,000 Chicago, Burl. & Quincy R. R., D. E. 4's
(part of), (sold during year), 222.78
10,000 Worcester Cons. Street Railway 5's (part of),
(sold during year), 88.52
Peabody Building Fund,
\$54,000 Kansas & Missouri R. R. 1st M. 5's (part of), 11,512.72 311.16
36,000 Chicago, Burl. & Quincy R. R., D. E. 4's
(part of), (sold during year), 133.44
10,000 Worcester Cons. Street Railway 5's (part
of), (sold during year), 53.03
Thaw Fund,
\$20,000 Girard Point Storage Co. 1st M. 3½'s, 20,353.98 350.00
Hemenway Fund,
\$2,000 Kansas City, Fort Scott & Memphis R. R. 7's
(sold during year), 16.67

SPECIAL FUNDS.

Bussey Trust,
Real Estate, 392,709.18 22,370.20
Robert Troup Paine Fund (accumulating),
\$40,000 Massachusetts 8½'s, 42,837.73 1,347.50
Amounts carried forward, \$1,121,215.44 \$54,386.09

Amounts brought forward,		\$1,121,215.44	\$54,386.09
Fund of the Class of 1834,			
Policy of Mass. Hospital Life Insurance Co., . .	1,000.00		40.00
Fund of the Class of 1844,			
Policy of Mass. Hospital Life Insurance Co., .	6,500.00		
Fund of the Class of 1853,			
Policy of Mass. Hospital Life Insurance Co., . .	3,725.00		155.53
Charles L. Hancock Bequest (part of),			
Mortgage,	11,697.00		801.14
Real Estate in Chelsea,	1,000.00		
Price Greenleaf Fund. The total amount of			
this Fund is \$719,978.31, which is invested as			
follows:—			
\$48,500 Consolidated R. R. of Vermont 5's, . .	38,280.00		
12,200 Rutland R. R. 6's,	12,932.00		732.00
87,200 Rutland R. R. 5's,	34,968.00		1,860.00
1,000 Cheshire R. R. 6's,	1,110.00		50.00
46,500 Ogdens. & L. Champ. R. R. 6's,	46,500.00		1,395.00
23,800 Ogdens. & L. Champ. R. R. income 6's, .	10,234.00		
3,000 Chicago, Burl. & Quincy R. R. 4's, . . .	3,880.00		100.00
4,000 Chicago, Burl. & Northern R. R. 5's, . .	4,000.00		200.00
290 shares Northern R. R. (N. H.),	29,290.00		3,190.00
800 " Rutland " preferred,	28,000.00		1,600.00
40 " Ogdens. & L. Champ. R. R.,	680.00		
317 " Boston & Maine R. R.,	48,746.21		1,902.00
360 " Boston & Lowell "	46,800.00		2,700.00
237 " Fitchburg R. R., preferred,	22,358.83		948.00
355 " Old Colony "	63,190.00		2,486.00
142 " Chicago, Burl. & Quincy R. R.,	18,946.35		1.00
20 " N. Y. Central & Hudson River R. R., .	2,260.00		80.00
292 " Michigan Central R. R.,	28,032.00		1,168.00
52 " West End Street Railway, preferred, .	4,830.00		208.00
\$50,000 Metropolitan Tel. & Tel. Co. 1st M. 5's, .	49,750.00		2,500.00
25,000 New England " " " 6's,	25,598.75		1,500.00
50,000 Chic. Junc. R'ys & Union Stock Yards 5's,	47,000.00		2,500.00
50,000 General Electric Co. 5's (sold during			2,506.94
year),			
70,000 Broadway Realty Co. Purchase money			
1st M. 5's,	75,250.00		660.56
Merrimack Manufacturing Co.'s Note (paid during			
year),			
Merrimack Manufacturing Co.'s Note,	28,000.00		840.00
Cocheco " " " (paid during			
year),			
Cash in New England Trust Co.,	50,847.17		259.11
Totals,		\$1,865,115.75	\$86,892.04

The other Funds are invested as a whole. The general investments are stated in detail on pages 28 and 29 of this

report. The usual summary of them, and of their income, is as follows :—

Investments.	Principal, Aug. 1, 1896.	Principal, July 31, 1897.	Income.
Notes, Mortgages, &c.,	\$435,500.00	\$527,500.00	\$15,311.59
Railroad Bonds and Premiums, . . .	1,996,504.37	2,171,983.37	99,684.07
Railroad Stocks,	249,687.50	249,687.50	10,000.00
Sundry Bonds,	1,138,092.50	1,007,155.00	87,053.14
Manufacturing Stocks,	37,322.29	37,322.29	3,280.00
Real Estate,	2,436,553.19	2,435,085.98	120,623.14
Brattle Street Reversion (1918), . . .	1,000.00	1,000.00	
Advances to Bussey Trust,	54,835.51	54,835.51	2,741.78
“ “ Sch. of Veterinary Med., . . .	24,406.01	24,406.01	1,220.30
“ “ Botanic Department,	14,581.19	13,614.32	727.00
“ “ University Lands,	30,000.00	30,000.00	1,500.00
“ “ Dining Hall Association, . . .	15,232.16	13,732.16	913.93
“ “ Foxcroft Club,	500.00		
Baring Brothers & Company,	1,893.99	2,088.00	89.61
Term Bills due in October,	182,916.19	196,281.84	
Term Bills overdue,	5,153.92	5,582.84	
Cash in Suffolk National Bank, . . .	16,890.34	41,538.26	
Cash in National Union Bank,	186,822.90	268,892.91	4,972.44
Cash in New England Trust Co., . . .			177.83
Cash in hands of Bureau,	20,439.49	17,231.56	
Totals of general investments, . . .	\$6,849,336.55	\$7,097,987.55	\$318,267.14
Totals of special investments, . . .	1,678,477.12	1,865,115.75	86,892.04
Amounts,	\$8,526,813.67	\$8,963,053.30	\$405,159.18

The account of Advances for Railroad Bond Premiums has been credited with the sum of \$20,471.00 as the fair yearly repayment from income on account of premiums advanced; and the sum of \$2,995.75 has been credited to University Houses and Lands as a repayment to capital from a wasting security.

The net income of the general investments (\$318,267.14) has been divided at the rate of $4\frac{7}{10}\%$ per cent. among the Funds to which they belong, after allowing to certain temporary Funds and balances a special rate of three per cent. The fraction, which was \$522.51, has been placed as usual to the credit of the University account.

The rate of income compared with that for 1895–96, shows a loss of three one hundredths of one per cent.

The following table shows the income available for the departments dependent upon the College proper, and the expenditures in those departments; the income and the ex-

penditure for the Lawrence Scientific School and the College being, as during the previous year, combined in the College account : —

Interest on Funds for

University Salaries and Expenses,	\$49,937.04
Library Salaries and Expenses (not books),	22,680.47
College Salaries and Expenses,	50,695.99
Gymnasium, and repairs on College buildings, . .	none.
College Term Bills,	418,991.73

Sundry receipts, as follows : —

Gifts for Salaries and Expenses,	\$5,619.99		
Use of buildings (not University Houses and Lands),	2,184.99		
Laboratory and other fees,	89,777.56		
Sales of catalogues, pamphlets, &c.,	3,351.42		
Repayment of advances for books,	51.23	50,985.19	\$593,290.42

Expended for

University Salaries and Expenses,	\$78,371.47		
Library Salaries and Expenses (not books),	41,951.97		
College Expenses,	122,958.45		
College Salaries, for instruction,	316,796.31		
Gymnasium Expenses,	12,053.80		
Repairs, insurance and cleaning on College buildings not valued on Treasurer's books,	34,041.81		
Repayment to Museum of Comparative Zoölogy for expenditures on behalf of the Undergraduate Depart- ment,	5,000.00		
Deficit in the School of Veterinary Medicine for 1896- 97, assumed by the University,	5,487.34	\$611,660.65	
Balance, showing the deficit for the year, which has been charged to Stock Account,			\$18,370.23

For the University, College, Lawrence Scientific School, and Library accounts, taken together, there has been an increase of income from more tuition fees, and a large increase of expenditure, chiefly for instruction and for administering the Library. The year's deficit of the Veterinary School, amounting to \$5,487.34, has also been taken from the unrestricted income of the University. For all these purposes, it has been necessary to use the whole income of the Stock Account, and to take from the capital of that account the sum of \$18,370.23, for the year's deficit. For 1895-96 there was a like deficit of \$9,426.05.

The Divinity School has had more income from the Bussey Trust, and a larger outlay, with a deficit of \$1,305.37. For 1895-96 there was a surplus of \$413.63.

The Law School, with more tuition fees, more income from the Bussey Trust, and a large increase of expenditure, chiefly for the improvement of Austin Hall, has had a surplus of \$7,103.88. For 1895-96 the surplus was \$21,378.97.

The Medical School, with more tuition fees, has had a surplus of \$2,259.59. For 1895-96 there was a deficit of \$5,335.88.

The Dental School has had many more fees, from tuition and from the Infirmary, much larger outlay, and a surplus of \$1,881.03. For 1895-96 the surplus was \$3,447.90.

The Museum of Comparative Zoölogy has used all the income of its restricted Funds as required by the conditions of gift, but nearly all of the income of the Sturgis Hooper Fund has, since the death of Professor Whitney, been added to the capital of that Fund. The Museum has had a surplus of unrestricted income amounting to \$1,247.12. The sum of \$5,000, paid from the College income of 1896-97, as a partial repayment of expenditures made by the Museum in previous years for the benefit of undergraduates, has been used to pay interest upon, and to repay in part, the principal of the advances from the Memorial Fund for the extension of the Museum building and for the purchase of fossils.

For the general account of the Observatory there has been a surplus of \$506.39. For 1895-96 the surplus was \$3,780.89, from which \$2,825.90 was taken to pay an old debt. All of the income of the Boyden Fund has been used during the year for the work in Peru, and the large gifts from Mrs. Draper for the special research work of the Draper Memorial have been spent.

The Bussey Institution has had much more income from the Bussey Trust, a larger outlay, chiefly for repairs on the Mansion House, and a surplus of \$810.41. This is in addition to \$3,990 received from insurance on the Whitney Barns, recently burned, which must be used for rebuilding. For 1895-96 there was a deficit of \$3,098.07.

For the Veterinary School, with much smaller receipts from its Hospital and Forge, and larger expenses, there has been a deficit of \$5,487.34, in spite of gifts for immediate use, which have been spent. For 1895-96 the deficit was \$2,459.23.

Both of these deficits have been taken from the unrestricted income of the University, as the Veterinary School can no longer be allowed to borrow money.

Gifts have been received during the year as follows:—

GIFTS TO FORM NEW FUNDS OR INCREASE OLD ONES.

From the estate of George E. Ellis, securities and cash amounting to \$44,803.75, additional, on account of his residuary bequest to constitute a fund to be known as the "Harvard Ellis Fund," in memory of his son, John Harvard Ellis of the class of 1862.

From the estate of Harold Whiting, \$20,613.60, his bequest of \$20,000, with accumulated interest, for establishing and maintaining "one or more fellowships in Physics, in connection with the Graduate Department of the University, to be called in memory of my late father, William Whiting, the Whiting Fellowships."

From the Treasurer of the Class Subscription Fund, the additional sum of \$10.

From the Harvard Club of Fall River, \$800, to be added to the Fall River Scholarship Fund, established by Milton Reed.

From J. Howard Nichols, \$5,000, "as the foundation of the "Howard Gardner Nichols Scholarship" for undergraduates, in memory of my deceased son, who graduated at Harvard College with the Class of 1893."

From an anonymous friend of the University, securities amounting to \$2,216.25, to be added to the Julius Dexter Scholarship Fund.

From Mrs. Sarah W. Wigglesworth, Mrs. Jane N. Grew, Mrs. Mary G. Pickering, Mrs. Henrietta G. Fitz, and George Wigglesworth, widow, sisters, and brother of the late Edward Wigglesworth, M.D., \$5,000, for the endowment of the Edward Wigglesworth Scholarship in the Medical School.

From the estate of Mrs. Sophia Gage Burr, \$15,000, additional, on account of her residuary bequest for maintaining the Burr Scholarships in Harvard College.

From the Wendell Phillips Memorial Association, \$100, to be added to the Wendell Phillips Memorial Scholarship Fund.

From the estate of Samuel A. Borden, \$1,700, on account of his bequest of \$2,000 for establishing the Borden Scholarship.

From an anonymous friend, through B. L. Robinson, \$2,000, to be added to the Herbarium Fund.

Through J. H. Gardiner, Treasurer of the Committee, gifts for establishing the Francis James Child Memorial Fund, from

		Amount brought forward, \$2,162.00	
Edwin H. Abbot	\$100.00	Mrs. George W. Childs . . .	100.00
Mrs. Louis Agassiz	20.00	Charles F. Choate	50.00
R. W. Alden	2.00	Joseph H. Choate	50.00
James Barr Ames	50.00	J. H. Choate, Jr.	5.00
Winthrop Ames	10.00	William G. Choate	25.00
Arthur Amory	15.00	D. Crawford Clark	20.00
Arthur Amory, Jr.	15.00	Joseph H. Clark	25.00
Anonymous	5.00	J. P. Clark	5.00
Anonymous	10.00	Lewis C. Clark	20.00
W. D. Bancroft	10.00	Eliot C. Clarke	25.00
Mrs. Edward Bangs	25.00	S. B. Clarke	25.00
Francis Bartlett	100.00	Miss Anna C. Clinch	100.00
J. H. Beale, Jr.	5.00	W. B. S. Clymer	10.00
Charles C. Beaman	100.00	Albert S. Cook	10.00
Perry Belmont	250.00	Walter Cook	5.00
Miss A. A. Bigelow	25.00	Harold J. Coolidge	20.00
George Blagden	20.00	R. W. Cones	5.00
Mrs. Arthur W. Blake	500.00	Edgar Crocker	10.00
C. J. Blake	10.00	H. W. Cunningham	10.00
George Baty Blake	25.00	Paul Dana	5.00
Mrs. George Baty Blake	25.00	Mr. & Mrs. W. E. Darwin . .	20.00
C. N. Bliss, Jr.	10.00	Warren Delano	25.00
C. D. Bradlee	25.00	E. L. Dresel	5.00
R. M. Bradley	5.00	George Dexter	100.00
W. Kirkpatrick Brice	25.00	William S. Dexter	300.00
L. B. R. Briggs	20.00	E. S. Dixwell	1,000.00
F. T. Brown	5.00	J. W. Dyar	11.00
G. C. Buell	10.00	Charles W. Eliot	25.00
William N. Bullard	10.00	G. F. Emmet	5.00
Miss Helen C. Butler	250.00	S. F. Emmon	5.00
Max E. Butler	10.00	W. P. Few	5.00
Prescott Hall Butler	50.00	F. P. Fish	50.00
Miss Rosalie Butler	50.00	J. B. Fletcher	5.00
James Byrne	10.00	Charles F. Folsom	10.00
A. A. Carey	100.00	W. H. Forbes	100.00
G. R. Carpenter	5.00	J. McG. Foster	5.00
James C. Carter	250.00	Theodore L. Frothingham . .	5.00
F. W. Chapin	5.00	William T. Frothingham . . .	5.00
Amount carried forward, \$2,162.00		Amount carried forward, \$4,368.00	

Amount brought forward, \$4,368.00	
Horace Howard Furness	100.00
Thomas Gaffield	10.00
J. H. Gardiner	25.00
Mrs. John L. Gardner	25.00
W. A. Gardner	100.00
Alfred C. Garrett	40.00
W. P. Garrison	10.00
J. Geddes, Jr.	2.00
John B. Gerrish	15.00
L. R. Gibbs	2.00
Edwin Ginn	100.00
Edwin L. Godkin	50.00
Lawrence Godkin	25.00
C. H. Grandgent	5.00
Percy S. Grant	20.00
Robert Grant	10.00
John C. Gray	25.00
Russell Gray	50.00
H. E. Greene	5.00
H. C. Greene	10.00
Charles E. Guild	100.00
F. B. Gummere	10.00
B. C. Gunther	25.00
Elisha Gunn	10.00
W. G. Hale	10.00
Edward H. Hall	15.00
Learned Hand	25.00
Henry J. Hayden	25.00
Augustus Hemenway	500.00
James J. Higginson	25.00
Mr. & Mrs. A. S. Hill	100.00
George Hill	10.00
E. J. Holmes	5.00
W. O. Holway	5.00
A. A. Howard	10.00
George E. Howe	5.00
W. D. Howells	50.00
John E. Hudson	100.00
James H. Hyde	25.00
Charles E. Inches	10.00
F. G. Ireland	15.00
F. R. Jewett	15.00
C. G. Kidder	10.00
D. Kimball	10.00
David P. Kimball	250.00
G. L. Kittredge	50.00
Hammond Lamont	5.00
Gardiner M. Lane	20.00

Amount carried forward, \$6,437.00

Amount brought forward, \$6,437.00	
H. B. Lathrop	2.50
Miss Harriet M. Laughlin	100.00
Amory A. Lawrence	100.00
William Lawrence	50.00
Lewis Cass Ledyard	100.00
Henry Lee	100.00
A. L. Lincoln, Jr.	10.00
James Loeb	25.00
Morris Loeb	5.00
A. M. Lord	2.00
Thornton K. Lothrop	50.00
Robert N. Lovett	25.00
John Lowell	250.00
Arthur T. Lyman	100.00
John J. Mack	3.00
Alexander McKenzie	5.00
Kenneth McKenzie	3.00
Charles F. McKim	25.00
Charles B. McMichael	10.00
J. M. Manly	25.00
P. B. Marcou	10.00
A. R. Marsh	25.00
Miss E. F. Mason	25.00
Albert Matthews	50.00
Henry Wise Miller	10.00
Mrs. Miller	5.00
Francis Minot	10.00
R. S. Minot	10.00
Miss E. T. Minturn	25.00
Dave H. Morris	25.00
Miss Frances R. Morse	25.00
Vernon Munroe	20.00
Bennett H. Nash	25.00
Walter W. Naumberg	10.00
Grenville H. Norcross	10.00
Otis Norcross	10.00
Charles E. Norton	50.00
Carleton E. Noyes	10.00
N. Y. Local Committee on Harvard Examinations for Women,	75.00
L. E. Opdyke	5.00
E. G. Parker	2.00
W. G. Peckham	50.00
Wm. Lyon Phelps	10.00
H. A. Phillips	5.00
Henry Pickering	70.00
William L. Porter	25.00

Amount carried forward, \$8,024.50

Amount brought forward, \$8,024.50		Amount brought forward, \$9,110.50	
W. K. Post	10.00	Charles Thorndike	50.00
George Putnam	25.00	Robert N. Toppan	25.00
G. Putnam, for the estate of		Frederick Townsend, Jr.	5.00
J. R. Lowell	50.00	A. C. Train	1.00
Milton Reed	25.00	Merritt Trimble	100.00
W. W. Richards	25.00	Richard Trimble	25.00
John Ritchie	20.00	Alfred Tuckerman	25.00
John C. Ropes	50.00	Miss Emily Tuckerman	500.00
W. L. Ropes	10.00	Charles H. Tweed	25.00
Walter T. Rosen	5.00	Henry S. Van Duzer	20.00
Charles H. Russell	25.00	F. H. Viaux	10.00
Stephen Salisbury	100.00	Henry Villard	100.00
Alden Sampson	100.00	C. S. Wadsworth	10.00
E. T. Sanford	10.00	William Cushing Wait	5.00
Ellery Sedgwick	10.00	P. K. Walcott	2.00
Henry D. Sedgwick	100.00	H. Walters	100.00
Theodore Sedgwick	10.00	S. D. Warren	250.00
Miss M. T. Sedgwick	25.00	B. M. Watson	10.00
Frederick C. Shattuck	50.00	C. E. Weatherby	1.00
C. C. Sheldon	10.00	Frank Wells	5.00
E. S. Sheldon	10.00	George D. Wells	10.00
Arthur M. Sherwood	5.00	Julian Palmer Welsh	5.00
Jeremiah Smith	50.00	Barrett Wendell	15.00
C. A. Snow	5.00	Charles D. Wetmore	25.00
James R. Soley	5.00	Edmund Wetmore	25.00
Charles F. Southmayd	100.00	Mrs. Charles Wheeler	100.00
J. A. Stillman	10.00	Leonard Wheeler	10.00
Francis H. Stoddard	10.00	C. J. White	10.00
Charles W. Stone	5.00	H. T. White	10.00
John H. Storer	5.00	W. A. & M. A. White	25.00
J. J. Storrow	100.00	George Wigglesworth	100.00
J. J. Storrow, Jr.	20.00	C. A. Williams	25.00
George L. Stowell	25.00	Lombard Williams	5.00
Mrs. John Swann	25.00	Moses Williams	10.00
T. Suffern Taler	25.00	Justin Winsor	10.00
J. S. P. Tatlock	2.00	Grenville L. Winthrop	20.00
G. L. Teeple	2.00	Roger Wolcott	25.00
Ezra R. Thayer	10.00	M. C. Woods	1.00
J. Henry Thayer	10.00	H. G. Woodworth	10.00
Phillips B. Thompson	2.00		
Amount carried forward, \$9,110.50		\$10,820.50	

From H. H. Hunnewell, \$5,000, towards the endowment of the Surgical Laboratory in the Medical School.

From the estate of Antoine Ruppaner, \$5,000, on account of his bequest of \$10,000 for establishing the "Dr. Ruppaner Fund" for the use of the Medical School.

From the estate of William Oxnard Moseley, \$50,000, his bequest for establishing a professorship in the Medical School, in memory of his son, William Oxnard Moseley.

From the estate of Buckminster Brown, \$127.20, on account of the income of Dr. Brown's bequest, now in the hands of trustees, for the establishment of the John B. and Buckminster Brown Professorship of Orthopedic Surgery.

From the Class of 1844 its Class Fund, amounting in securities and cash to \$6,480, for establishing the Fund of the Class of 1844.

From Robert Codman, \$20, to be added to the Fund of the Class of 1844.

From the Trustees of the Peabody Museum of American Archaeology and Ethnology, in accordance with a special act of the Legislature of Massachusetts, all the property held by them, consisting of interests in land, buildings, and collections, together with cash and securities representing invested Funds amounting to \$163,129.26.

The total amount of these gifts for capital account is \$337,820.56, as is also stated on page 24 of this report.

GIFTS FOR IMMEDIATE USE.

From William James, \$125, to be added to the income of the James Walker Fellowship for 1897-98.

From John Lowell, on behalf of himself and Mrs. Lowell, \$400, the twelfth yearly payment for the support of two Scholarships to be known as the George Emerson Lowell Scholarships.

For the use of the Botanic Garden, Museum, and Laboratories, from

Anonymous, through G. L. Goodale	\$1,100
Anonymous, through G. L. Goodale	150
H. H. Hunnewell	3,000
E. V. R. Thayer	1,000
	<hr/> \$5,250

From the estate of Miss Elizabeth Torrey, \$1000, "to be used for the purchase of books for the library of the Historical Department."

From Henry C. Warren, \$750, additional, to be applied to the printing of Hindoo texts and of translations from the same, and to the purchase of Hindoo manuscripts.

From William G. Farlow, his annual gift of \$450, towards the salary of the Assistant in the Cryptogamic Herbarium.

From James A. Garland, \$3,000, for salaries in the department of Architecture.

For Geographical models, from

W. S. Bigelow	\$100	Miss Clara B. Kimball	\$15
Miss Amy Folsom	50	A. Lawrence Lowell	25
Miss Edith Forbes	20	Miss Frances R. Morse	50
John L. Gardner 2d	50	“ Marian Russell	10
Mrs. H. S. Grew	50	“ Mary L. Ware	10
“ Augustus Hemenway	50	Henry Whitman	25
Miss Marian Hovey	50	Mrs. H. M. Whitney	5
“ Marian C. Jackson	50	“ J. Huntington Wolcott	25
Mrs. Mary M. Kehew	10		<u>\$595</u>

For the salary of the Instructor in Semitic languages, from

A. Shuman	\$50.00
The proceeds of a course of lectures delivered in Long-	
wood by D. G. Lyon	209.55
	<u>\$259.55</u>

From Jacob H. Schiff, \$100, for special use of the Semitic Department.

From Nathaniel Thayer, \$100, for the payment of salaries for instruction in the Slavic languages.

From James Hazen Hyde, \$100, for the library of the Historical Department.

For the Zoölogical Department, from

John L. Gardner 2d	\$120
Mrs. Laura Oppenheimer	150
	<u>\$270</u>

For the library of the German Department, from

H. C. G. von Jagemann	\$6.00
L. F. Kiesewetter	10.00
H. K. Schilling	41.98
	<u>\$57.98</u>

For the library of the French department, from

James Hazen Hyde	\$100
Cercle Français	100
F. C. de Sumichrast	2
	<u>\$202</u>

From an anonymous giver, through William G. Farlow, \$500, for cases for the exhibition of fungi.

From William G. Farlow, \$397.73, for expenditures in connection with the Cryptogamic Herbarium.

From Henry C. Warren, \$364.56, for the Sanskrit Class Room library.

For the Herbarium, from

Anonymous, through B. L. Robinson	\$3,000
William M. Canby	10
E. S. Dixwell	100
Haslett McKim	100
John D. Williams	100
	<u>\$3,810</u>

From Archibald Cary Coolidge, \$100, for arranging, binding, and cataloguing Slavic books, \$129.89 for books on nihilism, and \$26.57 for books on Dante.

From Mrs. J. Randolph Coolidge, \$60, for Russian books.

From the Society for Promoting Theological Education, \$1,989.57, for the library of the Divinity School.

From Julian W. Mack, \$503, to be added to the balance of Scholarship Money Returned, in the Law School.

From the English Department, \$250, for books for the Child Memorial Library.

From Henry F. Sears, \$751.51, for the Pathological Department Library.

From Moorfield Storey and James J. Putnam, \$1,300, from the income of a trust fund held by them, for the payment of certain salaries in the Medical School.

From Mrs. Henry L. Higginson, \$50, for the Pharmacological Laboratory.

From Walter G. Chase, \$200, for the Embryological Laboratory.

From friends, through Henry P. Bowditch, \$250, to be added to the salary of the Instructor in Pharmacology for 1897-98.

**For the Charity Hospital for Animals in connection with the
School of Veterinary Medicine, from**

		Amount brought forward, . . .	\$335
R. L. Agassiz	\$5	Charles Merriam	10
Mrs. Herbert Beech	25	R. L. Michie & Co.	20
“ George Baty Blake	20	Grenville H. Norcross	20
“ John L. Bremer	50	Mrs. W. B. Potter	100
Edward M. Brewer	5	John C. Ropes	20
Miss Martha C. Codman	20	Mrs. Henry Saltonstall	10
Charles U. Cotting	10	H. B. Stearns	10
Clarence H. Crafts	5	Mr. & Mrs. John H. Storer	5
Charles P. Curtis	10	W. W. Taff	50
Miss I. P. Curtis	10	Louis B. Thacher	5
William H. Dunbar	10	Bayard Thayer	100
Mrs. William J. Fegan	5	C. S. Wadsworth	10
George W. Gale	5	Mrs. H. V. Ward	5
John L. Gardner	100	N. Ward Company	10
C. F. Hutchins	10	Mrs. John M. Welsh	50
C. P. Jaynes	5	Edward R. Wharton	25
Miss Caroline E. Jenks	5	Edward Wheelwright	5
William Caleb Loring	10	John D. Williams	50
Miss E. F. Mason	20	Miss Louise H. Williams	50
“ Eleanor G. May	5	Miss Ruth Williams	50
		Amount carried forward, . . .	\$335

From Shepherd Brooks, \$800, for the School of Veterinary Medicine.

Additional subscriptions from graduates of the Dental School, to be applied towards the immediate wants of the School, paid to August 1, 1897, from

Charles H. Abbott	\$25
P. B. Laskey	5
William H. Potter	5
Charles Wilson	10
	\$45

From Gardiner M. Lane, Treasurer, \$61.12, the unexpended balance of gifts received for the portrait of Professor Sophocles.

From Mrs. C. M. Barnard, \$600, her fourteenth yearly payment for the Warren H. Cudworth Scholarships.

From Mrs. Henry Draper, of New York, an additional sum of \$9,999.96, to be expended by the Director of the Observatory in prosecuting the researches in the photography of stella spectra, with which the late Dr. Henry Draper's name is honorably associated.

From Edward C. Pickering, \$141.30, to repay to the Observatory the amount of interest charged on the advances to the Observatory in 1895-96.

For the library of the Semitic Department, from

Jacob H. Schiff	\$500.00
C. H. Toy	45.07
	<u>\$545.07</u>

From the J. W. and Belinda L. Randall Charities Corporation, \$70,000, "for the erection and equipment of a building for use as a commons hall by such students as desire to economize under such regulations as said President and Fellows shall from time to time determine."

From the Trustees of the Peabody Museum of American Archaeology and Ethnology, \$1,429.64, unexpended income of Museum Funds, and \$258.40, unexpended balances of gifts, in their hands.

From friends of the Peabody Museum of American Archaeology and Ethnology, \$150, towards the salary of the Assistant in Anthropology.

For the Peabody Museum of American Archaeology and Ethnology, from

Mrs. N. E. Baylies	\$25.00
Clarence B. Moore	250.00
	<u>\$275.00</u>

The total amount of these gifts for immediate use is \$108,085.85, as is also stated on page 22 of this report.

EDWARD W. HOOPER, *Treasurer.*

Boston, November 11, 1897.

*General Statement of Receipts and Disbursements
for the year ending*

INCOME.

Interest on notes, mortgages, advances, &c.,		\$26,153.81
United States 5's,		15,000.00
Massachusetts 3½'s,		1,347.50
City of Boston 3½'s,		350.00
Chicago Sanitary District 5's,		5,000.00
Metropolitan Telephone & Telegraph Co. 5's,		7,500.00
Chicago Junc. Railways & Union Stock Yards Co. 5's,		14,990.63
New England Telephone and Telegraph Co. 6's,		7,500.00
General Electric Co. 5's,		15,041.67
Broadway Realty Co. Purchase Money 5's,		1,708.84
Girard Point Storage Co. 3½'s,		350.00
Policies Mass. Hospital Life Insurance Co.,		395.53
Deposit in New England Trust Co.,		447.82
Deposit in National Union Bank,		4,972.44
Interest on Railroad Bonds (after deducting \$20,471.00 for sinking premiums).		
Fremont, Elkhorn & Mo. Valley 6's,	\$600.00	
Rutland Railroad 6's,	732.00	
Rutland Railroad 5's,	1,860.00	
Cheshire Railroad 6's,	60.00	
Ogdensburg & Lake Champlain 6's,	1,395.00	
Chicago, Burlington & Northern 5's,	200.00	
Chicago, Burlington & Quincy 4's,	120.00	
Chicago, Burlington & Quincy 7's,	24,130.00	
Chicago, Burlington & Quincy conv. 5's,	4,200.00	
Chicago, Burlington & Quincy D. E. 4's,	579.00	
Burlington & Mo. River in Neb. 6's,	21,464.67	
Eastern Railroad sterling 6's,	5,737.40	
Eastern Railroad 6's,	18,490.00	
Union Pacific R'y Omaha Bridge Renewal 5's,	8,555.00	
Fort Scott, So. E. & Memphis 7's,	6,931.00	
Chicago & No. W., Madison Extension 7's,	5,310.00	
Minneapolis Union 5's,	4,866.00	
Kansas City, Fort Scott & Memphis 6's,	46.67	
Little Rock & Fort Smith 7's,	105.00	
Kansas Equipment 5's,	125.00	
Kansas & Missouri 5's,	1,350.00	
Worcester Cons. Street Railway 5's,	230.07	107,086.81
Dividends on Stocks.		
Amoskeag Manufacturing Co.,	\$600.00	
Merrimack " "	680.00	
Pacific Mills,	2,000.00	3,280.00
Chicago, Burlington & Quincy R. R.,	\$2,788.00	
New York Central & Hudson River R. R.,	8,080.00	
Amounts carried forward,	\$10,868.00	\$211,124.05

*of the Treasurer of Harvard College,
July 31, 1897.*

EXPENSES.

Paid to account of Expenses in the

University, as per Table I (page 50).

Fellowships and Scholarships,	\$14,025.00	
Prizes,	750.00	
Salaries,	29,706.95	
Sundry payments made from special Funds, .	14,119.45	
Other expenses	40,714.52	
Deficit in the School of Veterinary Medicine for 1896-97,	5,487.84	\$104,806.26

College, as per Table II (page 54).

Salaries for instruction,	\$316,796.81	
Sundry salaries,	11,724.50	
Repairs, insurance, and cleaning on College Edifices, not valued on Treasurer's books, .	84,041.81	
General expenses,	46,320.77	
Scholarships,	84,708.32	
Beneficiaries,	16,779.74	
Prizes,	621.61	
Botanic Garden and Botanic Museum,	10,246.24	
Herbarium,	8,092.97	
Hemenway Gymnasium,	12,053.30	
Jefferson Physical Laboratory,	5,234.85	
Books for special departments,	1,365.87	
Apparatus, &c., from special gifts,	1,658.32	
Printing, from Publication Funds,	8,668.72	
Summer Schools,	12,676.89	
Appleton Chapel,	7,876.28	
Appropriations for collections and laboratories,	24,260.06	
Stoughton Pasture expenses,	496.00	
Repayment to Museum of Comparative Zoölogy for expenditures on behalf of the Under- graduate department,	5,000.00	573,612.01

Library, as per Table III (page 64).

Salaries,	\$13,666.66	
Services and wages	17,031.51	
Books,	14,930.18	
Gore Hall alterations,	1,581.62	
Other expenses,	11,253.80	58,463.77

Divinity School, as per Table IV (page 67).

Salaries for instruction,	\$24,337.65	
Scholarships and Beneficiaries,	2,162.25	
Other expenses,	9,125.53	35,625.43

Amount carried forward, \$772,504.47

*General Statement of Receipts and Disbursements
for the year ending*

INCOME (continued).

Amounts brought forward, \$10,868.00 \$211,124.05

Dividends on Stocks (continued).

Michigan Central R. R.,	1,163.00		
Rutland R. R., preferred,	1,600.00		
Northern R. R. (N. H.),	3,190.00		
Fitchburg R. R., preferred,	948.00		
Boston & Maine R. R.,	1,902.00		
Boston & Lowell R. R.,	2,700.00		
Old Colony R. R.,	2,485.00		
West End Street Railway, preferred,	208.00	25,069.00	
State Street Exchange,	\$450.00		
American Bell Telephone Co.,	565.17		
Calumet & Hecla Mining Co.,	880.00	1,895.17	

Real Estate Investments, from rents, &c., net receipts.

Cambridge (University Houses and Lands)

gross receipts,	\$38,216.48		
Less Taxes,	\$2,427.48		
Insurance,	179.87		
Repairs, improvements, care, &c.,	11,756.48		
Repaid to capital,	2,995.75	17,358.58	\$20,857.85

Boston (general investments).

Gross receipts,	\$170,878.86		
Less Taxes,	\$29,718.86		
Insurance,	4,548.46		
Repairs, improvements, care, &c.,	9,892.19		
Repaid to capital,	6,596.21	50,250.72	120,629.14

Bussey real estate.

Gross receipts,	\$41,049.94		
Less Taxes,	\$7,684.53		
Insurance,	1,481.85		
Interest,	2,741.78		
Repairs, improvements, care, &c.,	1,833.87		
Heat and power,	4,997.71	18,679.74	23,870.20

Sundry estates (special investments).

Gross receipts,	\$4,607.00		
Less Taxes,	\$733.64		
Insurance	70.00		
Repairs,	695.78	1,499.37	3,107.68
			166,958.82

Amount carried forward, \$405,047.04

*of the Treasurer of Harvard College,
July 31, 1897.*

EXPENSES (continued).

Amount brought forward,		\$772,504.47
Law School, as per Table V (page 69).		
Salaries for instruction,	\$37,000.00	
Scholarships,	2,800.00	
Austin Hall alterations,	18,222.19	
Other expenses,	26,518.26	84,535.45
Medical School, as per Table VI (page 70).		
Salaries for instruction,	\$86,685.83	
Fees repaid to Instructors,	5,757.00	
Scholarships and Beneficiaries,	8,971.40	
Boylston Medical Prizes and expenses, . .	187.50	
Warren Anatomical Museum,	589.88	
Sundry payments made from special Funds,	1,659.41	
Laboratory expenses, &c.,	7,087.15	
Other expenses,	29,681.27	135,519.44
Dental School, as per Table VII (page 73).		
Salaries for instruction,	\$11,550.00	
Other expenses,	16,659.59	28,209.59
Museum of Comparative Zoölogy, as per Table VIII (page 74).		
Paid from sundry Funds on the order of the Faculty,		
	\$21,391.04	
Sturgis Hooper Fund, Professor of Geol- ogy and expenses,	329.10	
Scholarship,	250.00	21,970.14
Peabody Museum of American Archae- ology and Ethnology, as per Table IX (page 74).		
Peabody Professor Fund, Peabody Pro- fessor,	\$1,721.64	
Fellowships and Scholarships,	950.00	
Other expenses,	3,703.08	6,374.72
Observatory, as per Table X (page 75).		
Salaries,	\$9,650.00	
Other expenses,	41,283.60	50,933.60
Bussey Institution, as per table XI (page 77).		
Salaries for instruction,	\$5,400.00	
Other expenses,	11,068.58	16,468.58
Arnold Arboretum, as per Table XI (page 77).		
Salaries,	\$3,500.00	
Other expenses,	7,029.73	10,529.73
Amount carried forward,		\$1,126,845.66

*General Statement of Receipts and Disbursements
for the year ending*

INCOME (continued).

Amount brought forward,		\$405,047.04
Term Bills.		
College, as per Table II,	\$418,991.73	
Divinity School, as per Table IV,	5,817.22	
Law School, as per Table V,	71,727.00	
Medical School, as per Table VI,	111,618.78	
Dental School, as per Table VII,	21,895.52	
Peabody Museum of American Archaeology and Ethnology, as per Table IX,	283.50	
Bussey Institution, as per Table XI,	800.00	
School of Veterinary Medicine, as per Table XII,	7,051.39	638,185.14
Sundries.		
William Pennoyer Annuity,	\$134.20	
Asa Gray's copyrights,	2,216.98	
Trustee of Thayer Scholarships,	3,000.00	
Matthews Scholarships ($\frac{1}{2}$ net rents of Hall),	4,782.49	
Trustees of Edward Hopkins,	210.76	
Sale of grass, wood, old material, &c.,	5,758.96	
Sale of old examination papers,	268.12	
Sale of tickets to Commencement Dinner,	700.00	
Sale of tickets to Divinity School Alumni Dinner,	34.50	
Sale of books, pamphlets, catalogues, &c.,	3,070.83	
Board of horses, cattle, &c., at Bussey Institution,	3,687.38	
Repayment of advances for microscopes,	946.00	
Repayment of salary,	189.18	
Repayment of advances for books,	51.28	
Laboratory instruction to Dental and Veterinary students,	3,088.00	
Use of Library by resident graduates and others,	100.00	
Use of lockers in Hemenway Gymnasium,	4,263.50	
Use of Hemenway Gymnasium by a Graduate,	10.00	
Use of Buildings (not University Houses and Lands),	4,275.36	
Fees for admission and condition examinations,	1,958.00	
Fees in Infirmary, Dental School,	6,360.62	
Fees from Veterinary Hospital and Forge,	14,633.01	
Fees for examination for degree of Ph.D.,	60.00	
Laboratory fees,	18,123.53	
Fees for Summer Courses, \$15,100.00		
Other receipts from Summer Courses,	162.53	15,262.53
Fines,	10.15	
Insurance,	4,552.08	97,747.86
Sundry Gifts for immediate use (see page 17),		108,085.85
Total amount of income carried forward,		\$1,249,065.39

of the Treasurer of Harvard College,
July 31, 1897.

EXPENSES (*continued*).

Amount brought forward,	\$1,126,845.66	
School of Veterinary Medicine, as per Table XII (page 78).		
Salaries for instruction,	\$8,750.00	
Scholarships	220.00	
Other expenses,	20,016.74	
	<u>\$28,986.74</u>	
Less deficit for 1896-97 assumed by the University,	5,487.34	23,499.40
Annuities from the following Funds.		
Bussey Trust,	\$4,000.00	
Gore,	800.00	
Gurney,	1,000.00	
Henry Willard Williams,	1,895.17	
Anonymous,	200.00	7,895.17
Class Funds.		
Paid the Secretary of the Class of 1853,		155.53
Sundry payments from income.		
From Gray Fund for Engravings, to the Treasurer of the Museum of Fine Arts,	\$432.18	
From Daniel Williams Fund, for the benefit of the Herring Pond and Masphee Indians,	644.19	
From Sarah Winslow Fund, to the Minister and Teacher at Tyngsborough, Mass.,	220.54	
From John Witt Randall Fund, expenses on account of the Randall collection,	1,789.58	
From Woodland Hill Fund, expenses on land, plans, and surveys,	1,393.26	
From Bussey Trust, expenses in connection with the Bussey portraits and furniture (given by the College to Mr. Bussey's family after Mrs. Motley's children ceased to occupy the Mansion House), and repairing the Bussey tomb,	287.40	4,767.15
Total amount of expenses,		<u>\$1,162,662.91</u>

INVESTMENTS AND SUNDRY PAYMENTS.

\$1,000 Chicago Junction Railways & Union Stock Yards Coll. Tr. 5's,	\$1,050.00	
100,000 Broadway Realty Co. Purchase Money 1st M. 5's,	107,500.00	
70,000 Broadway Realty Co. Purchase Money 1st M. 5's (Price Greenleaf Fund),	75,250.00	
Amounts carried forward,	<u>\$183,800.00</u>	<u>\$1,162,662.91</u>

*General Statement of Receipts and Disbursements
for the year ending*

RECEIPTS EXCLUSIVE OF INCOME.

GIFTS FOR CAPITAL ACCOUNT.

Amount brought forward,	\$1,349,065.39	
Class Subscription Fund (additional),	\$10.00	
Fall River Scholarship (additional),	800.00	
Burr Scholarships (additional),	15,000.00	
Wendell Phillips Memorial Scholarship (additional),	100.00	
Samuel A. Borden Scholarship (part),	1,700.00	
Herbarium Fund (additional),	2,000.00	
Francois James Child Memorial Fund,	10,820.50	
Howard Gardner Nichols Scholarship,	5,000.00	
Julius Dexter Scholarship (additional),	2,216.25	
Harvard Ellis Fund (additional),	44,808.75	
Whiting Fellowships,	20,613.60	
Surgical Laboratory Fund,	5,000.00	
Dr. Rupperer Fund,	5,000.00	
William O. Moseley Fund,	50,000.00	
John B. and Buckminster Brown Professorship,	127.20	
Fund of the Class of 1844,	6,500.00	
Edward Wigglesworth Scholarship,	5,000.00	
Peabody Professor Fund,	47,335.10	
Peabody Collection Fund,	47,335.10	
Peabody Building Fund,	28,855.56	
Thaw Fund,	30,093.25	
Hemenway Fund,	10,008.25	337,820.56

SALES.

\$250,000 General Electric Co. 5's,	\$250,000.00
50,000 " " " " (Price Greenleaf)	50,000.00
36,000 Chicago, Burl. & Quincy R. R. (Denver Exten.) 4's,	38,480.00
10,000 Chicago Junction Railways & Union Stock Yards Coll. Tr. 5's,	10,844.44
10,000 Worcester Cons. Street Railways 5's,	10,100.00
2,000 Kansas City, Fort Scott & Memphis R. R. 6's,	1,620.00
2,000 Montana Central R. R. 6's,	2,287.50
17,000 Burlington & Missouri River R. R. (Neb.) 6's paid off at par,	17,000.00
1,000 Fort Scott, South Eastern & Memphis R. R. 1st M. 7's paid off at 105,	1,050.00
2,000 United States 4's of 1907 and accrued interest,	2,216.25
39 shares Connecticut River R.R.,	9,728.25
23 " American Bell Telephone Co.,	4,598.00
68 " Boston Wharf Co.,	4,717.50
30 " Chicago & Alton R.R. preferred,	5,851.25

Amounts carried forward, . . . \$402,993.19 \$1,586,835.95

*of the Treasurer of Harvard College,
July 31, 1897.*

INVESTMENTS AND SUNDRY PAYMENTS (continued).

Amounts brought forward, . . .		\$183,800.00	\$1,162,662.91
\$200,000 Burlington & Missouri River R. R. non			
Ex. 6's,		214,000.00	
Accrued interest and expenses on above bonds,		7,534.36	
3,000 Massachusetts 8½'s (Robert Troup Paine			
Fund),		3,179.92	
6,500 Policy of Mass. Hospital Life Insurance Co.			
(Fund of the Class of 1844),		6,500.00	
Estate No. 20 Oxford Street, Cambridge,		15,294.85	
Estate No. 25 Kirkland Street, Cambridge,		35,863.99	
Estate No. 2 Holmes Place, Cambridge,		33,071.15	
Marsh land in Brighton,		150.00	
Repairs on Lowell Estate from Insurance received in 1895-96,		5,129.00	506,522.77
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Invested in notes of manufacturing companies, &c.,		\$550,000.00	
Less mortgages and notes paid off,		507,500.00	42,500.00
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Paid Baring Brothers & Co. in account,		\$195.87	
Less commission and expenses,		1.86	194.01
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Property received as part of the residuary bequest of			
George E. Ellis,			
\$3,000 Little Rock & Fort Smith R'y Co. 1st M. 7's,		\$2,670.00	
1,000 Kansas City, Fort Scott & Memphis R. R.			
Cons. M. 6's,		770.00	
5,000 Kansas Equipment Co. 1st M. 5's,		3,500.00	
3,000 Chicago, Burl. & Quincy R. R. Conv. 5's,		2,996.25	
10,000 Current River R. R. 1st M. 5's,		5,000.00	
220 shares Chicago, Burl. & Quincy R.R.,		15,867.50	80,803.75
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Property received from the Trustees of the Peabody			
Museum of American Archaeology and Eth-			
nology,			
\$20,000 Girard Point Storage Co. 1st M. 8½'s,		\$20,355.98	
54,000 Kansas & Missouri R. R. 1st M. 5's,		49,950.00	
36,000 Chicago, Burl. & Quincy R. R. (Denver			
Extension), 4's,		33,480.00	
10,000 Chicago Junction Railways & Union Stock			
Yards Coll. Tr. 5's,		10,844.44	
10,000 Worcester Cons. Street R'y 5's,		10,100.00	
29 shares Connecticut River R. R.,		9,728.25	
22 " American Bell Telephone Co.,		4,598.00	
68 " Boston Wharf Co.,		4,717.50	
20 " Chicago & Alton R. R. preferred,		5,351.25	
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Amounts carried forward,		\$149,125.42	\$1,742,683.44

*General Statement of Receipts and Disbursements
for the year ending*

RECEIPTS EXCLUSIVE OF INCOME (*continued*).

Amounts brought forward,	\$402,933.19	\$1,586,885.95
80 shares New York, New Haven & Hartford R. R., .	5,802.50	
80 " Real Estate Associates,	8,000.00	
25 " General Electric Co. preferred,	1,918.75	
80 " Vermont & Massachusetts R. R.,	4,530.00	
1 " Boston Real Estate Trust,	1,150.00	
Land taken from the Woodland Hill Estate by the Metropolitan Park Commission,	1,253.00	
Sewer location in lands adjoining Boylston street, Cambridge, taken by the City of Cambridge, . .	490.06	421,837.50

SUNDRIES.

Dining Hall Association, to reduce debt,	\$1,500.00	
Foxcroft Club, in payment of debt,	500.00	
Advances to premiums on R. R. Bonds, repaid, . . .	20,471.00	
Advances to improvements on Gray and Andrews Estates, repaid,	6,596.21	
Advances to accrued interest and expenses on bonds, repaid,	7,584.86	
Advances to Museum of Comp. Zoölogy, repaid in part from College income,	4,482.20	
University Houses and Lands, repaid to capital, . . .	2,995.75	
Scholarship and Beneficiary money returned by Bene- ficiaries,	1,728.37	45,807.39

Bursar's Sundry Accounts.

Receipts during the year, 325,511.39

Balance, August 1, 1896.

Cash in Suffolk National Bank,	\$16,890.34	
Cash in National Union Bank,	188,822.90	
Cash in New England Trust Co.,	29,097.17	
Cash in hands of Charles F. Mason, Bursar, . .	20,439.49	
Term Bills due October, 1896,	182,916.19	
" " overdue,	5,158.92	443,225.01

Total, \$2,823,867.74

*of the Treasurer of Harvard College,
July 31, 1897.*

INVESTMENTS AND SUNDRY PAYMENTS (continued).

Amounts brought forward, . . .		\$149,125.42	\$1,742,688.44
30 shares New York, New Haven & Hartford R. R.	5,302.50		
30 " Real Estate Associates,	3,000.00		
\$2,000 Kansas City, Fort Scott & Memphis R.R. 6's,	1,620.00		
2,000 Montana Central R. R. 6's,	2,287.50		
25 " General Electric Co. preferred,	1,918.75	168,254.17	
Property received for the Julius Dexter Scholarship,			
\$2,000 United States 4's of 1907 and accrued int.,		2,216.25	
Property received for the Fund of the Class of 1844,			
30 shares Vermont and Massachusetts R. R., . .	\$4,530.00		
1 " Boston Real Estate Trust.	1,150.00	5,680.00	

Bursar's Sundry Accounts.

Payments during the year.

On account of Harvard Dining Association, \$190,823.87		
On account of Foxcroft Club,	81,705.20	
On sundry accounts,	106,625.23	328,659.80

Balance, July 31, 1897.

Cash in Suffolk National Bank,	\$41,538.26	
Cash in National Union Bank,	268,892.91	
Cash in New England Trust Co.,	50,847.17	
Cash in hands of Charles F. Mason, Bursar, . .	17,231.56	
Term Bills due October, 1897,	196,281.84	
" " overdue,	5,582.84	580,374.58
Total,		\$2,822,867.74

The following Account exhibits the State of the Property, as entered upon the Treasurer's Books, July 31, 1897.

Separate Investments, as stated in detail on pages 8, 4, and 5 of this report, consisting of

Notes,	\$39,697.00	
Railroad Bonds,	225,790.25	
Sundry Bonds,	270,287.48	
Railroad Stocks,	308,500.89	
Sundry Stocks,	25,000.00	
University Houses and Lands,	480,246.96	
Other Real Estate,	488,203.48	
Sundries,	26,548.14	
Cash in New England Trust Co.,	50,847.17	\$1,865,115.75

And "General Investments," as follows:—

Mortgages and Notes.

Mortgages,	\$5,500.00	
Boott Cotton Mills' Note,	100,000.00	
Lowell Manufacturing Co.'s Note,	50,000.00	
Massachusetts Cotton Mills' Note,	50,000.00	
Merrimack Manufacturing Co.'s Note,	22,000.00	
City of Fall River, Note,	100,000.00	
City of Lawrence, Note,	100,000.00	
City of Portland, Notes,	100,000.00	527,500.00

Railroad Bonds.

\$488,600 Burl. & Mo. R. in Nebr. non ex. 6's, . .	\$488,600.00	
108,000 Ft. Scott, So. E. & Mem., 1st M. 7's, .	108,000.00	
898,000 Eastern, 1st M. 6's,	898,000.00	
£19,600 Eastern " " Sterling,	95,383.40	
\$500,000 Chicago, Burl. & Quincy Consol. 7's, .	500,000.00	
100,000 Chicago, Burl. & Quincy Conv. 5's, . .	100,000.00	
175,000 U. P. Omaha Bridge Renewal 5's, . .	175,000.00	
100,000 Chic. & No. W. Madison Ex. 1st M. 7's, .	100,000.00	
100,000 Minneapolis Union 1st M. 5's,	100,000.00	
Railroad Bond Premiums,	168,999.97	2,171,983.37

Sundry Bonds.

\$300,000 United States 5's,	\$344,062.50	
100,000 Metropolitan Tel. & Tel. Co. 1st M. 5's, .	99,500.00	
100,000 New England " " 6's,	102,375.00	
250,000 Chicago Junction Railways and Union Stock Yards Coll. Trust 5's,	250,342.50	
100,000 Chicago Sanitary District 5's,	103,875.00	
100,000 Broadway Realty Co. Purchase money 1st M. 5's,	107,500.00	1,007,155.00

Amount carried forward, \$5,571,764.12

Amount brought forward, \$5,571,754.12

Sundry Stocks.

12 shares Amoskeag Manufacturing Co., . . .	\$3,654.00	
17 " Merrimack " . . .	17,000.00	
20 " Pacific Mills,	16,668.29	
500 " Chicago, Burl. & Quincy R. R., . .	45,000.00	
2000 " N. Y. Central & Hud. River R. R., .	204,687.50	267,009.79

Real Estate.

Amory Estate, Franklin Street, Boston, . . .	\$165,615.81	
Webb Estate, Washington Street, Boston, . . .	164,604.79	
Gray and Andrews Estates, Washington Street, Boston,	767,565.10	
Cole Estate, Washington Street, Boston, . . .	250,000.00	
Lowell Estate, Washington Street, Boston, . . .	464,368.91	
Hayward Estate, Washington Street, Boston, . .	578,861.88	
Townsend Estate, Hawkins Street, Boston, . . .	44,569.49	
Reversion of Buildings in Brattle Street, Boston,	1,000.00	2,436,065.98

Sundries.

Advances to Bussey Trust,	\$54,835.51	
" " School of Veterinary Medicine, . . .	24,406.01	
" " Botanic Department,	18,614.32	
" " University Lands,	80,000.00	
" " Dining Hall Association,	18,792.16	
Baring Brothers & Co.,	2,088.00	
Term bills due October, 1897,	196,281.84	
" " overdue,	5,582.84	340,540.68

Cash in Suffolk National Bank,	\$41,538.26	
" " National Union Bank,	268,892.91	
" " hands of Charles F. Mason, Bursar, . . .	17,231.56	327,662.73
Total,		\$8,963,063.80

The foregoing Property represents the following Funds and Balances, and is answerable for the same.

Principal, Aug. 1, 1896.	UNIVERSITY FUNDS.	Principal, July 31, 1897.
\$92,536.66	Stock Account (so called),	\$74,166.43
141,638.74	Ins. and Guaranty Fund (so called), .	141,638.74
15,750.00	Israel Munson Fund,	15,750.00
16,871.68	Leonard Jarvis Fund,	16,871.68
25,000.00	John C. Gray Fund,	25,000.00
115,966.56	George B. Dorr Fund,	115,966.56
113,817.44	Francis E. Parker Fund,	113,817.44
5,000.00	Stanton Blake Fund,	5,000.00
4,771.33	Charlotte F. Blanchard Fund, .	4,771.33
10,000.00	Joseph Lee Fund,	10,000.00
100,000.00	William F. Weld Fund,	100,000.00
10,000.00	Henry P. Kidder Fund,	10,000.00
48,458.50	George Draper Fund,	48,458.50
46,918.13	Isaac Sweetser Fund,	46,918.13
5,000.00	George Baxter Hyde Fund, . .	5,000.00
40,604.59	Harvard Ellis Fund,	35,408.34
5,250.00	Samuel D. Bradford Fund, . . .	5,250.00
22,000.00	John Cowdin Fund,	22,000.00
23,370.03	John L. Russell Fund,	23,370.03
81,950.54	Henry T. Morgan Fund,	81,950.54
5,000.00	Seth Turner Fund,	5,000.00
30,000.00	William Perkins Fund,	30,000.00
20,000.00	Walter Hastings Fund,	20,000.00
63,618.56	President's Fund,	63,608.65
154.42	Thomas Cotton Fund,	154.71
311,339.35	Retiring Allowance Fund,	319,972.28
61,240.27	William Hayes Fogg Endowment,	56,432.23
	J. W. and Belinda L. Randall Fund,	70,000.00
14,022.65	Gifts for Phillips Brooks House, .	14,443.54
55,815.88	John Parker Fellowships,	55,989.23
12,243.29	Robert Treat Paine Fellowship, .	12,318.71
11,063.16	Harris Fellowship,	10,835.21
10,774.42	John Thornton Kirkland Fellows'p,	10,790.80
11,027.18	James Walker Fellowship,	11,295.45
32,515.07	Rogers Fellowships,	31,918.27
11,115.94	Henry Lee Memorial Fellowship, .	11,188.39
10,604.58	Ozias Goodwin Memorial Fellowship,	10,828.26
	Whiting Fellowships,	21,259.53
11,009.00	H. B. Rogers Memorial Fellows'p,	11,076.42
11,490.45	John Tyndall Scholarship,	11,530.48
38,345.26	Joseph Eveleth Fund,	39,027.47
1,552.81	Frank Bolles Memorial Fund, . .	1,562.80
500.00	George Griswold Van Rensselaer Fellowship (balance), . .	250.00
\$1,648,233.59	. . . Amounts carried forward, . . .	\$1,770,250.09

Principal,
Aug. 1, 1896.

Principal, July 31, 1897.

\$1,648,233.59	Amounts brought forward, . . .	\$1,770,250.09
6,531.25	George B. Sohler Prize Fund, . .	6,540.16
2,721.16	Sumner Prize Fund,	2,749.05
2,354.55	John O. Sargent Prize Fund, . .	2,365.23
3,461.35	Robert N. Toppan Prize Fund, .	3,474.02
1,154.79	James Gordon Bennett Prize F'd,	1,209.08
150.00	Robert Treat Paine Prizes, . .	50.00
150.00	Dante Prizes,	100.00
8,212.41	Lectures on Political Economy Fund,	8,598.87
5,413.21	Ingersoll Lecture Fund,	5,431.12
1,573.15	Gifts for Semitic Collection, . . .	1,573.15
	“ “ “ Library,	417.54
		\$1,802,757.81

COLLEGE FUNDS.

27,748.64	Alford Professorship,	27,748.64
28,337.40	Boylston “	28,337.40
21,619.50	Eliot “	21,619.50
10,000.00	Eliot “(Jon. Phillips' gift), . .	10,000.00
3,500.01	Erving “	3,500.01
35,990.99	Fisher “	35,990.99
20,217.08	Hersey “	20,217.08
21,744.18	Hersey “ (Thomas Lee's gift), . .	21,744.18
3,747.33	Hollis “ (Mathematics), . . .	3,747.33
34,517.60	Hollis “ (Divinity),	34,517.60
43,062.93	McLean “	43,062.93
21,000.00	Perkins “	21,000.00
25,020.19	Plummer “	25,020.19
52,500.00	Pope “	52,500.00
56,441.25	Rumford “	56,441.25
23,139.83	Smith “	23,139.83
193,762.84	Gurney “	193,807.20
16,240.38	Fund for Permanent Tutors, . . .	13,240.38
15,796.97	Lee Fund for Reading,	15,796.97
150,117.54	Class Subscription Fund, . . .	150,127.54
3,107.71	Paul Dudley Fund for Lectures, .	3,153.79
31,500.00	Jonathan Phillips F'd (unrest'd),	31,500.00
1,050.00	John A. Blanchard “ “ . . .	1,050.00
6,821.48	John W. P. Abbot “ “ . . .	7,142.07
13,679.71	Daniel H. Pierce “ “ . . .	13,744.01
6,230.00	Daniel Austin “ “	6,230.00
1,616.30	Schol. & Benef. money returned (bal.),	2,707.18
343.94	Henry Flynt's Bequest,	343.89
3,528.76	Abbot Scholarship,	3,594.62
1,441.28	Alford “	1,509.01
5,377.18	Bartlett “	5,463.19
5,694.94	Bassett “	5,752.60
12,462.26	Bigelow “	12,464.63

\$2,577,313.63 . . Amounts carried forward, . . . \$899,214.01 \$1,802,757.81

Principal, Aug. 1, 1896.		Principal, July 31, 1897.	
\$2,577,813.63	. . Amounts brought forward, . . .	\$899,214.01	\$1,802,757.81
	Samuel A. Borden Scholarship, .	1,756.59	
111,533.87	Bowditch Scholarship,	111,828.32	
1,434.84	Bright " (balance), .	1,376.00	
3,656.55	Browne "	3,678.43	
15,509.49	Burr "	31,006.66	
6,162.80	Buluff S. Choate Scholarship, . .	6,152.46	
7,800.02	Class of 1802 Scholarship, . . .	7,866.62	
3,090.71	" 1814 "	3,110.99	
6,039.49	" 1815 "(Kirkland), .	6,123.32	
4,207.86	" 1817 "	4,233.64	
3,415.99	" 1828 "	3,476.54	
4,512.64	" 1835 "	4,574.75	
4,173.35	" 1841 "	4,169.48	
4,890.07	" 1852 "(Dana), . .	4,919.90	
10,000.00	" 1856 "	10,000.00	
3,444.58	" 1867 "	3,456.49	
11,110.15	Crowninshield "	11,298.98	
600.00	W. H. Oudworth " (balance),	600.00	
5,500.74	George & Martha Derby Sch.,	5,509.29	
2,409.77	Julius Dexter Scholarship, . . .	4,708.71	
5,459.01	W. S. Eliot "	5,465.58	
1,246.51	Fall River "	2,048.27	
6,019.53	Farrar "	6,135.81	
10,699.54	Richard Augustine Gambrill		
	Scholarship,	10,802.44	
6,007.66	Charles Haven Goodwin Sch.,	5,990.04	
3,966.31	Greene Scholarship,	4,052.71	
100.00	Price Greenleaf Sch. (balance),	300.00	
10,132.20	Ebenezer Rockwood Hoar Sch.,	10,208.40	
6,130.80	Levina Hoar Scholarship,	6,035.63	
11,672.66	Hodges "	12,021.29	
5,329.57	Hollis "	5,336.92	
4,959.03	Matthews "	4,441.52	
5,525.42	Merrick "	5,585.09	
7,752.23	Morey "	7,816.57	
5,899.19	Lady Mowson "	5,422.94	
	Howard Gardner Nichols Sch.,	5,117.50	
4,005.67	Lucy Osgood Scholarship, . . .	4,193.95	
6,645.46	Pennoyer "	6,593.11	
4,016.20	Perkins "	4,054.95	
1,275.73	Wendell Phillips Mem'l Scholars'p,	1,412.38	
1,153.28	Rodger Scholarship,	1,207.42	
3,378.91	Henry B. Rogers Scholarship, .	3,387.72	
5,382.98	Edward Russell "	5,383.63	
5,203.32	Sales Scholarship,	5,247.86	
4,326.83	Saltonstall "	4,429.65	
4,997.10	Leverett Saltonstall Scholarship,	5,031.96	
\$2,918,090.64	. . Amounts carried forward, . . .	\$1,267,776.51	\$1,802,757.81

Principal, Aug. 1, 1896.		Principal July 31, 1897.	
\$2,918,090.64	Amounts brought forward, . . .	\$1,267,776.51	\$1,802,757.81
6,775.63	Mary Saltonstall Scholarship, . .	6,844.10	
3,240.43	Sever Scholarship,	3,242.71	
10,298.43	Sewall "	10,382.44	
47,995.19	Shattuck "	48,050.95	
5,854.86	Slade "	5,880.04	
4,223.90	Story "	4,247.43	
2,817.20	Stoughton Scholarship,	2,492.78	
4,099.87	Gorham Thomas "	4,025.91	
7,248.15	Toppan "	7,288.81	
24,798.80	Townsend "	24,764.35	
4,091.08	Walcott "	4,216.70	
10,832.43	Whiting "	10,874.87	
1,333.34	Exhibitions,	1,333.34	
2,019.42	Palfrey Exhibition,	1,954.81	
10,384.47	Henry B. Humphrey Fund, . .	10,422.52	
1,945.44	Robert Keyne Fund, . . (1659)	1,945.44	
1,245.85	William Brattle " . . (1717)	1,245.85	
347.94	Henry Gibbs " . . (1722)	347.94	
336.70	Ephraim Flynt " . . (1723)	336.70	
748.25	Thomas Danforth Fund, (1724)	748.25	
157.12	Anne Mills " (1725)	157.12	
561.19	Thomas Fitch " (1737)	561.19	
202.01	Benjamin Wadsworth Fund, (1737)	202.01	
299.28	John Ellery " (1738)	299.28	
112.23	Henry Flynt " (1760)	112.23	
149.65	Joseph Sewall " (1765)	149.65	
419.04	Nathaniel Appleton " (1772)	419.04	
269.38	Edward Holyoke " (1743)	269.38	
730.80	Mary Lindall " (1812)	730.80	
1,200.00	Samuel Ward Fund,	1,200.00	
2,122.07	John Glover "	2,221.80	
11,155.10	Quincy Tufts "	11,155.10	
5,448.78	Day "	5,448.73	
10,534.61	Munroe "	10,534.61	
4,208.28	Dr. A. P. Peabody Memorial Fund,	4,222.50	
6,856.92	Price Greenleaf Aid (balance), .	7,024.87	
3,950.12	Boylston Prizes for Elocution, . .	3,880.77	
13,908.81	Howdoin Prizes for Dissertations,	14,562.53	
1,044.89	Sales Prize,	1,048.46	
1,504.98	Hopkins Gift for "Deturs" (bal.),	1,564.86	
865.12	Chauncey Wright Fund,	900.68	
50,000.00	Increase B. Wheeler Fund, . . .	50,000.00	
1,033.57	Fund for Religious Services,	1,033.57	
15,329.58	John E. Thayer Fund,	15,369.78	
6,753.71	Classical Publ. F'd of Class of 1856,	7,071.15	
39,780.00	Botanic Department Fund,	39,780.00	
66,382.31	Lowell Fund for a Botanic Garden,	66,382.31	
\$2,318,707.02	Amounts carried forward, . . .	\$1,664,729.16	\$1,802,757.81

Principal, Aug. 1, 1896.		Principal, July 31, 1897.	
\$5,818,707.02	Amounts brought forward, . . .	\$1,864,729.16	\$1,802,757.81
25,706.62	Herbarium Fund,	26,695.76	
75,000.00	Physical Laboratory Endowment, . .	75,000.00	
12,727.98	Henry Warren Torrey Fund, . .	10,406.09	
	Elisabeth Torrey Bequest, . . .	985.25	
	Francis James Child Mem. Fund, .	11,278.76	
8,114.56	Joseph Lovering Fund,	8,119.66	
5,930.53	Cyrus M. Warren "	6,126.83	
2,061.56	Jefferson Physical Lab'y (balance),	438.65	
	George William Sawin Fund, .	4,098.72	
981.61	Sundry Gifts (unexpended balances),	1,048.41	
277.09	Gifts for Classical Library (balance),	179.63	
	" " Historical " "	56.59	
310.97	" " Geological Dep't "		
1,543.88	" " Sanskrit "	2,491.89	
234.87	" " Psychological Laboratory, .		
5,600.00	" " College Salaries,	4,750.00	1,816,355.40

LIBRARY FUNDS.

100,000.00	Eben Wright Fund,	\$100,000.00	
26,036.28	Constantius "	26,017.36	
500.00	Jarvis "	500.00	
11,925.34	Daniel Treadwell Fund,	11,925.34	
10,552.98	Subscription for Library (1859), . .	10,552.72	
2,128.56	Bowditch Fund,	2,112.64	
118.77	Bright " (balance),	162.10	
27,849.58	Edwin Conant Fund,	27,819.39	
5,304.99	Denny "	5,309.96	
5,263.44	Farrar "	5,264.27	
3,157.92	Haven "	3,152.11	
10,055.52	Hayes "	10,051.19	
5,282.47	Hayward "	5,258.94	
2,384.77	Hollis "	2,387.21	
2,173.25	Homer "	2,126.06	
5,293.42	Lane "	5,286.49	
24,175.49	Lowell "	24,439.83	
61,056.49	Minot "	60,516.38	
7,118.77	Lucy Osgood "	7,170.37	
6,997.63	Mary Osgood "	7,063.07	
4,171.08	Sales "	4,060.10	
5,339.57	Salisbury "	5,288.90	
20,094.92	Sever "	20,261.49	
3,981.81	Shapleigh "	3,975.81	
37,492.19	Sumner "	37,516.71	
5,005.24	Tucker "	5,010.84	
5,289.76	Ward "	5,294.69	
15,881.09	Walker "	15,873.94	
\$3,866,787.92	Amounts carried forward, . . .	\$414,406.91	\$3,619,113.21

Principal, Aug. 1, 1868.		Principal, July 31, 1897.	
\$3,866,787.92	Amounts brought forward, . . .	\$414,406.91	\$3,619,118.21
8.98	Wales Gift (balance),		
684.95	Waterston Gift (balance),	717.14	
10,062.81	J. Huntington Wolcott Fund, .	10,062.41	
516.50	Sundry Gifts, etc. (unexpended bal.),	479.50	425,635.96

DIVINITY SCHOOL FUNDS.

33,921.27	Divinity School (balance),	\$32,615.90	
37,583.74	Bussey Professorship,	37,583.74	
16,015.81	Parkman "	16,015.81	
6,008.48	Hancock "	6,008.48	
51,845.73	Winn Professorship of Ecclesiastical History,	51,845.73	
36,995.58	Frothingham Professorship, . . .	38,734.39	
20,280.38	Dexter Lectureship,	20,280.38	
9,184.69	Henry Lienow Fund,	9,184.69	
5,250.00	Mary P. Townsend Fund, . . .	5,250.00	
2,100.00	Winthrop Ward "	2,100.00	
1,050.00	Samuel Hoar "	1,050.00	
1,050.00	Abraham W. Fuller "	1,050.00	
1,050.00	Caroline Merriam "	1,050.00	
7,875.00	Joseph Baker "	7,875.00	
40,000.00	Thomas Tileston of New York Endowment,	40,000.00	
10,000.00	Henry P. Kidder Fund,	10,000.00	
17,000.00	Oliver Ames "	17,000.00	
1,000.00	Abby Crocker Richmond Fund, .	1,000.00	
71,427.02	New Endowment (1879),	71,427.02	
1,000.00	John L. Russell Fund,	1,000.00	
1,726.56	John W. Quinby "	1,807.73	
10,000.00	William B. Spooner Fund, . . .	10,000.00	
5,000.00	Edwin Conant "	5,000.00	
911.34	Lewis Gould "	911.34	
2,177.95	Joshua Clapp "	2,177.95	
525.00	Hannah C. Andrews "	525.00	
1,000.00	Adams Ayer "	1,000.00	
890.00	Daniel Austin "	890.00	
556.74	Louise J. Hall "	580.89	
3,026.50	Rushton Dashwood Burr Fund, .	3,130.37	
14,406.32	Jackson Foundation,	14,890.06	
5,227.61	Thomas Cary Scholarships, . . .	5,273.32	
2,575.26	George Chapman "	2,596.26	
4,249.00	Joshua Clapp "	4,268.70	
5,005.21	J. Henry Kendall "	4,973.78	
3,387.07	Nancy Kendall "	3,353.91	
13,030.87	Abner W. Buttrick Fund, . . .	13,110.00	
1,050.00	William Pomroy "	1,050.00	
3,655.06	Beneficiary money returned, . . .	3,826.84	449,937.27
\$4,326,544.30	Amounts carried forward,		\$4,494,736.44

Principal, Aug. 1, 1896.		Principal, July 31, 1897.
\$4,326,544.80	Amounts brought forward,	\$4,494,786.44

LAW SCHOOL FUNDS.

138,888.05	Law School (balance),	\$140,486.98	
15,750.00	Dane Professorship,	15,750.00	
23,979.82	Bussey "	23,979.82	
8,340.81	Royall "	8,340.81	
94,994.97	Weld "	94,994.97	
60,025.75	Bemis "	62,846.97	
47,021.25	Law School Book Fund,	47,021.25	
160.00	Scholarship money returned,	850.84	394,271.09

LAWRENCE SCIENTIFIC SCHOOL FUNDS.

40,805.73	Professorship of Engineering,	\$40,805.73	
61,536.43	Abbott Lawrence Fund,	61,536.43	
50,375.00	James Lawrence "	50,375.00	
30,686.85	John B. Barringer "	30,686.85	
25,000.00	Arthur Rotch "	25,000.00	
5,531.10	George A. Gardner "	5,578.16	213,962.17

MUSEUM OF COMPARATIVE ZOOLOGY FUNDS.

265.43	Museum of Comparative Zoölogy (bal.),	\$1,512.55	
50,000.00	Gray Fund for Zoölogical Museum,	50,000.00	
297,933.10	Agassiz Memorial Fund, }	297,933.10	
7,594.01	Teachers' and Pupils' " }	7,594.01	
117,469.34	Permanent Fund,	117,469.34	
7,740.66	Humboldt "	7,740.66	
5,485.88	Virginia Barret Gibbs Sch.,	5,493.72	
100,230.00	Sturgis Hooper Fund,	104,600.90	592,344.28

PEABODY MUSEUM OF AMERICAN ARCHÆOLOGY
AND ETHNOLOGY FUNDS.

	Peabody Museum (balance),	\$58.50	
	Peabody Professor Fund,	47,364.66	
	Peabody Collection "	47,975.84	
	Peabody Building "	28,355.56	
	Huntington Frothingham Wolcott Fund,	10,268.00	
	Thaw Fund,	30,124.14	
	Hemenway Fund,	10,952.10	
	Robert C. Winthrop Scholarship,	5,155.80	180,249.10

MEDICAL SCHOOL FUNDS.

75,334.39	Medical School (balance),	\$75,498.98	
19,192.65	Jackson Medical Fund,	19,192.65	
17,129.20	Geo. C. Shattuck "	17,129.20	
\$6,620,409.72	Amounts carried forward,	\$111,815.83	\$5,875,583.08

Principal, Aug. 1, 1886.		Principal, July 31, 1887.
\$5,620,409.72	Amounts brought forward, . . .	\$111,815.83 \$5,875,588.08
100,000.00	George Fabyan Fund,	100,849.17
	William O. Moseley Fund, . . .	50,685.40
870.68	John B. & Buckminster Brown Professorship,	1,042.01
13,849.26	Warren F'd for Anatom'l Museum,	13,910.28
3,445.54	Boylston Fund for Medical Prizes,	3,420.00
3,820.39	Boylston " " " Books,	3,662.07
1,282.07	Medical Library Fund,	1,342.32
2,000.00	Quincy Tufts Medical Fund, . .	2,000.00
25,512.68	Edward M. Barringer " . .	25,512.68
15,765.11	Mary W. Swett " . .	15,765.11
20,000.00	Samuel W. Swett " . .	20,000.00
1,836.08	Samuel E. Fitz " . .	1,836.08
6,124.18	J. Ingersoll Bowditch " . .	6,083.77
	Dr. Rupperer Fund,	5,000.00
	Surgical Laboratory Fund,	5,019.60
25,000.00	Henry Willard Williams Fund,	25,000.00
38,750.00	New Subscription Fund (1886), . .	38,750.00
157.25	John Foster income for Medical Students (balance),	7.25
5,564.66	D. W. Cheever Scholarship, . .	5,626.21
6,102.55	C. M. Jones " . .	6,139.39
6,126.01	Isaac Sweetser " . .	6,163.93
3,958.14	Charles Pratt Strong Scholars'p,	4,084.17
5,056.25	Alfred Hosmer Linder " . .	5,093.88
	Edward Wigglesworth " . .	5,107.72
5,215.45	Geo. Cheyne Shattuck Memorial Fellowship,	5,235.55
5,206.15	John Ware Memorial Fellowship,	5,202.83
5,441.34	Chas. Eliot Ware " . .	5,472.07
5,137.97	William H. Thorndike Prize F'd,	5,379.46
741.80	Ellis Gifts (balance),	485,206.78

DENTAL SCHOOL FUNDS.

15,818.07	Dental School (balance),	\$17,699.10
15,255.85	Dental School Endowment,	15,255.85
15,118.81	Gifts for Building,	15,572.37
		48,527.32

OBSERVATORY FUNDS.

954.99	Observatory (balance),	\$1,461.88
110,293.88	Edward B. Phillips Fund, . . .	110,293.88
21,000.00	James Hayward " . . .	21,000.00
31,845.01	David Sears " . . .	32,593.37
9,804.64	Josiah Quincy " . . .	9,801.58
2,000.00	Charlotte Harris " . . .	2,000.00
\$6,149,264.43	Amounts carried forward, . . .	\$177,150.21 \$6,409,317.13

Principal, Aug. 1, 1896.		Principal, July 31, 1897.
\$6,149,284.48	Amounts brought forward, . . .	\$177,150.21 \$6,409,317.18
5,000.00	Thomas G. Appleton Fund, . .	5,000.00
13,880.00	Augustus Story " . .	13,880.00
50,000.00	Observatory Endowment (1882), . .	50,000.00
278,557.86	Robert Treat Paine Fund, . . .	278,557.86
50,000.00	Paine Professorship,	50,000.00
208,844.41	Uriah A. Boyden Fund,	208,835.04
2,498.05	Bruce Gift (balance),	599.60
2,500.00	J. Ingersoll Bowditch Fund, . .	2,500.00
2,999.89	Draper Memorial (balance), . .	698.18
		761,715.89

OTHER FUNDS FOR SPECIAL PURPOSES.

392,709.18	Bussey Trust (income thereof, $\frac{1}{4}$ to Bussey Institution, $\frac{1}{4}$ to Law Sch'l, and $\frac{1}{4}$ to Divinity School),	\$392,709.18
11,133.31	Bussey Institution (balance), . . .	15,933.72
6,826.51	Woodland Hill Fund,	7,718.68
157,133.73	James Arnold "	157,508.00
1,715.17	Arboretum Construction Gifts, . . .	1,249.75
50,000.00	Bright Legacy,	50,000.00
41,492.03	Robert Troup Paine Fund, . .	42,839.53
42,000.00	James Savage "	42,000.00
8,171.50	John Foster "	8,171.50
29,989.33	Henry Harris "	29,989.33
2,000.00	John L. Russell "	2,000.00
16,456.71	Gray Fund for Engravings, . . .	16,777.70
29,875.74	John Witt Randall Fund, . . .	29,843.01
5,049.58	Gospel Church "	5,288.98
1,000.00	Fund of the Class of 1834, . . .	1,040.00
	" " " 1844,	6,500.00
3,725.00	" " " 1853,	3,725.00
720,040.81	Price Greenleaf Fund,	719,978.31
5,262.34	O. W. Doe Scholarship,	5,276.31
5,706.40	Lewis and Harriet Hayden Sch., .	5,812.88
5,115.40	Robert C. Winthrop Scholarship (transferred to Peabody Museum Funds).	
21,514.60	Gore Annuity Fund,	20,571.18
5,028.09	Anonymous Annuity Fund,	5,064.41
3,914.72	George William Sawin Fund, (transferred to College Funds).	
10,473.00	Huntington Frothingham Wol- cott Fund (transferred to Pea- body Museum Funds).	
72,918.60	Charles L. Hancock Fund, . . .	72,918.60
27,701.14	Bursar's Sundry Accounts,	24,553.23
\$3,429,847.56	Amounts carried forward, . . .	\$1,662,417.20 \$7,191,033.07

Principal, Aug. 1, 1896.		Principal, July 31, 1897.
\$8,429,847.56	Amounts brought forward, . . .	\$1,662,417.20 \$7,191,088.07
74,175.12	Gains and Losses for General Investments, . . .	86,687.62
1,625.00	Sundry Balances, . . .	1,625.00 1,750,729.83

**FUNDS IN TRUST FOR PURPOSES NOT
CONNECTED WITH THE COLLEGE.**

16,874.76	Daniel Williams Fund for the conversion of the Indians, . . .	\$16,500.19	
4,791.21	Sarah Winslow Fund for the Minister and Teacher at Tyngs- borough, Mass., . . .	4,790.22	21,290.41
<u>\$8,526,818.67</u>			<u>\$8,963,053.80</u>

Changes in the Funds during the year ending July 31, 1897.

Total amount of Funds and balances, July 31, 1897, as before stated, . . .	\$8,963,053.80
Total amount of Funds and balances, August 1, 1896, as before stated, . . .	8,526,818.67
Showing a total increase during the year of . . .	<u>\$436,239.63</u>

Which is made up as follows:—

Gifts forming new Funds or increasing old ones, . . .	\$537,820.56
Increase of Funds established during the year, . . .	8,783.53
Credit balances created, . . .	71,467.88
Gain from change of investment, . . .	12,512.50
Increase more than decrease of Funds and balances, which appear both at the beginning and end of the year, . . .	80,429.51
	<u>\$455,963.98</u>
Deduct from this amount	
Loss from change of investment, . . .	\$62.50
Sundry balances used up, . . .	1,291.63
Decrease of Stock Account, by excess of expenditures over income in College, Library, and University accounts, . .	18,870.28
	<u>19,724.35</u>
	<u>\$436,239.63</u>

Net increase of Funds and balances as above, . . .	\$118,148.42
Less decrease as above, . . .	19,724.35
Leaving amount of the net increase of the Funds and balances, excluding gifts for capital account, as is also shown in the following table, . . .	<u>\$98,419.07</u>

Statement showing Changes in the Different Funds

Increase of Funds and balances which appear both at the beginning and the end of the year, being the excess of income (including gifts for immediate use) over payments towards the special objects of those Funds.

UNIVERSITY.

Thomas Cotton Fund,	\$29
Retiring Allowance "	8,682.98
Gifts for Phillips Brooks House,	420.69
John Parker Fellowships,	173.35
Robert Treat Paine Fellowship,	75.42
James Walker Fellowship,	268.27
Henry Lee Memorial Fellowship,	72.45
H. B. Rogers " "	67.42
John Tyndall Scholarship,	40.03
Joseph Eveleth Fund,	682.21
Frank Bolles Memorial Fund,	9.99
George B. Sohler Prize Fund,	8.91
Sumner Prize Fund,	27.89
John O. Sargent Prize Fund,	10.68
Robert N. Toppan Prize Fund,	12.67
James Gordon Bennett Prize Fund,	54.29
Lectures on Political Economy Fund,	385.96
Ingersoll Lecture Fund,	17.91
	\$10,961.36

COLLEGE.

Gurney Fund,	\$44.36
Paul Dudley Fund,	46.08
John W. P. Abbot Fund,	320.59
Daniel H. Pierce Fund,	64.80
Scholarship and Beneficiary money returned (balance), . . .	1,090.88
Abbot Scholarship,	65.86
Alford "	67.73
Bartlett "	86.06
Bassett "	57.66
Bigelow "	2.37
Bowditch "	244.45
Bright " (balance),	241.66
Browne "	21.88
Burr "	587.17
Class of 1802 Scholarship,	66.60
" 1814 "	20.28
" 1816 " (Kirkland),	83.83
" 1817 "	47.78
" 1828 "	60.55
" 1835 "	62.11
" 1852 " (Dana)	29.83
" 1867 "	11.91

Amounts carried forward, \$3,323.94 \$10,961.36

and balances during the year ending July 31, 1897.

Decrease of Funds and balances which appear both at the beginning and the end of the year, being the excess of payments over income received (including gifts for immediate use) for the special objects of those Funds.

UNIVERSITY.

President's Fund,	\$9.91	
Wm. Hayes Fogg Endowment,	4,808.04	
Harris Fellowship,	229.95	
John Thornton Kirkland Fellowship,	43.62	
Rogers Fellowships,	596.80	
Oxias Goodwin Memorial Fellowship,	181.27	
George Griswold Van Rensselaer Fellowship,	250.00	
Robert Treat Paine Prizes,	100.00	
Dante Prizes,	50.00	\$6,269.59

COLLEGE.

Henry Flynt's Bequest,	\$.05	
Buluff S. Choate Scholarship,	10.84	
Class of 1841 Scholarship,	8.87	
Charles Haven Goodwin Scholarship,	17.69	
Levina Hoar Scholarship,	45.18	
Matthews Scholarship,	517.51	
Pennoyer "	52.85	
Stoughton "	324.42	
Gorham Thomas Scholarship,	78.96	
Townsend Scholarship,	84.45	
Palfrey Exhibition,	65.11	
Boylston Prizes for Elocution,	69.35	
Herbarium Fund,	1,010.86	
Henry Warren Torrey Fund,	2,321.84	
Jefferson Physical Laboratory (balance),	1,612.91	
Gifts for Classical Library (balance),	97.46	
Gifts for College Salaries,	850.00	7,107.28

LIBRARY.

Constantius Fund,	\$18.92	
Subscription for Library (1859), . . . . .	.26	
Bowditch Fund,	15.92	
Edwin Conant Fund,	80.19	
Farrar Fund,	19.17	
Haven "	5.81	
Hayes "	4.88	
Hayward Fund,	23.58	
Homer Fund,	37.19	
Lane "	6.93	

Amounts carried forward, \$162.25 \$18,376.87

*Statement showing Changes in the Different Funds***INCREASE.**

Amounts brought forward,	\$8,328.94	\$10,961.86
Crowninshield "	188.88	
George and Martha Derby Scholarship,	8.55	
Julius Dexter Scholarship,	82.69	
W. S. Eliot Scholarship,	6.57	
Fall River "	1.76	
Farrar "	116.28	
Richard Augustine Gambrill Scholarship,	102.90	
Greene Scholarship,	86.40	
Price Greenleaf Scholarship (balance),	200.00	
Ebeneser Rockwood Hoar Scholarship,	76.20	
Hodges Scholarship,	348.63	
Hollis "	7.35	
Merrick "	59.67	
Morey "	64.84	
Lady Mowison Scholarship,	53.75	
Lucy Osgood "	188.28	
Perkins "	88.75	
Wendell Phillips Memorial Scholarship,	86.65	
Rodger Scholarship,	54.19	
Henry B. Rogers Scholarship,	8.81	
Edward Russell "	50.65	
Sales "	44.54	
Saltonstall "	108.82	
Leverett Saltonstall "	54.86	
Mary Saltonstall "	68.47	
Sever "	2.28	
Sewall "	84.01	
Shattuck "	55.76	
Slade "	25.18	
Story "	23.53	
Toppan "	40.66	
Walcott "	125.62	
Whiting "	42.44	
Henry B. Humphrey Fund,	38.05	
Mary Lindall Fund (1812),	4.79	
John Glover "	99.78	
Price Greenleaf Aid (balance),	167.95	
Bowdoin Prizes for Dissertations,	653.72	
Sales Prize Fund,	4.07	
Hopkins Gift for "Deturs" (balance),	59.88	
Chauncey Wright Fund,	35.56	
John E. Thayer Fund,	40.20	
Classical Publication Fund of the Class of 1856,	817.44	
Joseph Lovering "	5.10	
Cyrus M. Warren "	196.80	
Amounts carried forward,	\$7,878.65	\$10,961.86

and balances during the year ending July 31, 1897. (Continued.)

DECREASE.

Amounts brought forward,	\$162.25	\$18,876.87
Minot Fund,	540.11	
Sales "	110.98	
Salisbury Fund	50.87	
Shapleigh "	6.50	
Walker "	7.15	
Sundry Gifts, &c. (unexpended balances),	87.00	914.66

DIVINITY SCHOOL.

Divinity School (balance),	\$1,805.37	
Jackson Foundation,	16.26	
J. H. Kendall Scholarship,	31.43	1,853.06

MEDICAL SCHOOL.

Boylston Fund for Medical Prizes,	\$25.54	
Boylston Fund for Medical Books,	158.32	
J. Ingersoll Bowditch Fund,	40.41	
John Foster income for Medical Students (balance),	150.00	
John Ware Memorial Fellowship,	3.32	377.59

OBSERVATORY.

Uriah A. Boyden Fund,	\$109.37	
Bruce Gift (balance),	1,893.45	
Draper Memorial (balance),	2,306.71	4,309.53

OTHER FUNDS FOR SPECIAL PURPOSES.

Arboretum Construction Gifts (balance),	\$465.42	
Gore Annuity Fund,	943.42	
Huntington Frothingham Wolcott Fund,	210.00	
Bursars Sundry Accounts,	8,147.91	4,766.75

FUNDS IN TRUST FOR PURPOSES NOT CONNECTED WITH THE COLLEGE.

Sarah Winslow Fund, . . . . .		.99
Amount carried forward,		\$26,099.45

*Statement showing Changes in the Different Funds***INCREASE.**

Amounts brought forward,	\$7,578.65	\$10,961.35
Dr. A. P. Peabody Memorial Fund,	14.22	
Sundry Gifts (unexpended balances),	116.80	
Gifts for Sanskrit Department,	948.06	
George William Sawin Fund,	184.00	2,641.73

LIBRARY.

Bright Fund,	\$43.33	
Denny "	4.97	
Hollis "	2.44	
Lowell "	263.84	
Lucy Osgood Fund,	51.60	
Mary Osgood "	65.44	
Sever "	166.57	
Sumner "	24.52	
Tucker "	5.60	
Ward "	4.98	
J. Huntington Wolcott Fund,	19.60	
Waterston Gift (balance),	32.19	685.08

DIVINITY SCHOOL.

Winn Professorship of Ecclesiastical History,	\$500.00	
Frothingham Professorship,	1,788.81	
John W. Quinby Fund,	81.17	
Louisa J. Hall "	24.15	
Bushton Dashwood Burr Fund,	103.87	
Thomas Cary Scholarships,	45.72	
George Chapman Scholarship,	21.02	
Joshua Clapp "	19.70	
Nancy Kendall "	16.84	
Abner W. Buttrick Fund,	79.13	
Beneficiary Money Returned,	171.78	2,802.19

LAW SCHOOL.

Law School (balance),	\$7,108.88	
Bemis Professorship,	2,821.22	
Scholarship money returned,	690.34	10,615.44

LAWRENCE SCIENTIFIC SCHOOL.

George A. Gardner Fund,	47.06	
Amount carried forward,	\$33,752.81	

and balances during the year ending July 31, 1897. (Continued.)

DECREASE.

Amount brought forward, \$44,823.80

Amount carried forward, \$44,823.80

*Statement showing Changes in the Different Funds***INCREASE.**

Amount brought forward, \$55,408.58

**FUNDS IN TRUST FOR PURPOSES NOT
CONNECTED WITH THE COLLEGE.**

Daniel Williams Fund, 125.48

\$55,528.96

Increase of Funds established during the year.

Whiting Fellowships,	\$645.92	
Howard Gardner Nichols Scholarship . . .	117.50	
Samuel A. Borden Scholarship,	56.59	
Francis James Child Memorial Fund,	458.26	
Peabody Professor Fund,	29.56	
Peabody Collection Fund,	640.24	
Thaw Fund,	28.89	
Hemenway Fund,	943.85	
Edward Wigglesworth Scholarship,	107.72	
Surgical Laboratory Fund,	19.60	
William O. Moseley Fund,	685.40	3,733.53

Credit balances created.

Gifts for Semitic Library,	\$417.54	
" " Historical "	56.59	
Peabody Museum of American Archaeology and Ethnology,	58.50	
J. W. and Belinda L. Randall Fund,	70,000.00	
Elizabeth Torrey Bequest,	935.25	71,467.83

Gain from change of Investments.

Gains and Losses for General Investments, 12,512.50

Total, \$143,242.87

and balances during the year ending July 31, 1897. (Continued.)

DECREASE.

Amount brought forward, \$44,823.80

Balance, which is the net increase of the Funds and balances for the year ending July 31, 1897, exclud- ing gifts for capital account,	98,419.07
Total,	\$143,242.87

The following tables are not found, in their present form, in the Treasurer's books. They are intended to exhibit with some detail the resources and the expenditures of each department of the University. The income of every Fund held by the University is given in these tables, and also the sum paid out for the specific object of each and every Fund, in case that sum be either less or more than the actual income of the Fund. If the object to which the income of a Fund is to be applied be a general one, — like salaries, for example, — no separate mention is made in these tables of that appropriation. That particular payment is merged with others of the same kind under the general heading. A balanced summary of these tables will be found on page 82.

TABLE NO. I.
THE UNIVERSITY.
RECEIPTS.

Income of the unappropriated fund heretofore called the
Stock Account,

From general investment,	\$3,515.03	
" special "	<u>1,824.16</u>	\$4,339.19

Income of the following funds : —

Insurance and Guaranty,

From general investment,	\$68.20	
" special "	<u>6,588.84</u>	6,657.04

Israel Munson, 740.25

Leonard Jarvis, 792.98

John C. Gray, from special investment, 1,175.00

George B. Dorr, from special investment, . . . 5,450.45

Francis E. Parker, from special investment, . . 5,849.40

Stanton Blake, 235.00

Charlotte F. Blanchard, 224.24

Joseph Lee, from special investment, 470.00

William F. Weld, 4,700.00

Henry P. Kidder, 470.00

George Draper, 2,277.58

Isaac Sweetser, 2,204.91

George Baxter Hyde, 235.00

Harvard Ellis,

From general investment,	\$2,072.98	
" special "	<u>480.00</u>	2,552.98

Samuel D. Bradford, 246.75

John Cowdin, from special investment, 1,928.38

John L. Russell 1,098.89

Henry T. Morgan, 8,851.70

Henry Harris, $\frac{1}{2}$ of income, 708.56

Seth Turner, 235.00

William Perkins, 1,410.00

Amount carried forward, \$47,847.70

TABLE NO. I, CONTINUED.

RECEIPTS.

Amount brought forward,	\$47,847.70	
Income of the following funds (continued):—		
Walter Hastings, from special investment, . .	1,064.25	
President's,	2,990.09	
Thomas Cotton,	7.24	
Retiring Allowance,	14,632.98	
Lectures on Political Economy,	885.96	
Ingersoll Lecture,	254.41	
William Hayes Fogg Endowment,		
Interest,	\$2,878.28	
Sales,	6.10	2,884.38
Parker Fellowships,	2,623.85	
John Thornton Kirkland Fellowship,	506.38	
Harris Fellowship,	520.05	
James Walker Fellowship,	518.27	
Rogers Fellowships,	1,523.20	
Robert Treat Paine Fellowship,	575.42	
John Tyndall Scholarship,	540.03	
Henry Lee Memorial Fellowship,	522.45	
Ozias Goodwin " "	493.78	
Henry Bromfield Rogers Memorial Fellowship,	517.42	
Whiting Fellowships,	645.92	
Joseph Eveleth	1,802.21	
Frank Bolles Memorial,	72.99	
Sumner Prize,	127.89	
George B. Schier Prize,	250.00	
John O. Sargent Prize,	110.68	
James Gordon Bennett Prize,	54.29	
Robert N. Toppan Prize,	162.67	
Gifts for Phillips Brooks House,	420.69	\$81,549.60
For immediate use.		
Gift for James Walker Fellowship,	\$125.00	
" " Semitic Library,	545.07	
" " a Commons Hall,	70,000.00	70,670.07
Balance remaining after dividing the net income among the Funds,		
Care of the Sarah Winslow Fund,	5.63	
Sale of catalogues, calendars, directories, &c.,	975.46	
" " grass, wood, and stone,	26.58	
Rent of houses in No. Harvard St., Brighton,	285.00	
Use of houses by College officers,	1,400.00	
Examination fees for degrees of Ph.D.,	60.00	3,275.18
		<u>\$155,494.85</u>

TABLE NO. I, CONTINUED.

PAYMENTS.

Overseers' Expenses.

Advertising,	\$179.10	
Printing President's Annual Report,	1,164.60	
Printing Treasurer's " "	800.08	
Printing other reports,	118.47	
Stationery and postage,	815.70	
Auditing Treasurer's accounts,	125.00	
Sundries,	10.94	\$2,213.84

Office Expenses.

President's,	\$553.77	
Treasurer's,		
Clerical services,	\$1,527.26	
Other expenses,	861.61	2,388.87
Bursar's,		
Clerical services,	\$2,313.43	
Other expenses,	1,259.01	3,572.44
Publication Agent's,		
Clerical services,	\$753.21	
Other expenses,	1,060.46	1,813.67
Supt. of Buildings' and Janitor's,	19.15	
Corporation Rooms (fuel, rent, &c.),	2,569.66	10,917.56

Salaries.

President,		
From the University,	\$5,000.00	
" President's Fund,	8,000.00	
" Thomas Cotton Fund,	6.95	\$8,006.95
Treasurer and Deputy Treasurer,	6,000.00	
Bursar,	8,500.00	
Corresponding Secretary of the University,	1,250.00	
Recording Secretary of the University,	1,750.00	
Secretary of the Board of Overseers,	200.00	
Publication Agent,	1,750.00	
Clerks Treasurer's office,	3,350.00	
Bursar's Assistant,	1,500.00	
Superintendent of Buildings,	2,400.00	29,706.95

Memorial Hall and Sanders Theatre.

Repairs,	\$2,463.66	
Fuel, lighting, furniture, cleaning, &c.,	841.50	2,805.16

General Expenses.

Repairs and improvements,	\$2,487.07
Janitors and cleaning,	1,649.99
Labor on grounds, shrubs, and gravel,	5,901.47
Fuel,	1,247.54

Amounts carried forward, \$11,285.07 \$45,643.51

TABLE NO. I, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$11,285.07	\$45,643.51
General Expenses (continued).		
Water,	41.72	
Lighting,	294.24	
Printing,	313.81	
Annual Catalogue and Calendar,	3,086.16	
Stationery and postage,	828.35	
Advertising,	452.20	
Taxes,	796.10	
Watchmen,	1,775.67	
Freight, diplomas, supplies, and sundries,	538.48	
Music, Commencement,	185.00	
Legal expenses,	10.00	
Cleaning portraits,	72.25	
Surveys and plans,	989.00	
Lunch for Scientific Societies	103.37	
Sewer assessments,	2,778.71	
Sidewalk assessments,	456.67	
Landscape Architects, plans and expenses,	687.94	
Delegates' expenses,	33.42	
Deficit in the School of Veterinary Medicine for 1896-97,	5,487.34	80,265.30
		<hr/>
		\$75,908.81
Sundry payments made from Special Funds.		
William Hayes Fogg Endowment Fund.		
Collections and expenses,	\$8,692.42	
Salary of Director,	1,000.00	\$7,692.42
Semitic books and binding,	127.53	
Retiring Allowance Fund,	6,000.00	
Ingersoll Lecture Fund,	236.50	
Frank Bolles Memorial Fund,	63.00	14,119.45
		<hr/>
Fellowships and Scholarships.		
John Parker,	\$2,450.00	
Harris,	750.00	
John Thornton Kirkland,	550.00	
James Walker,	375.00	
Rogers,	2,125.00	
Morgan,	2,000.00	
Robert Treat Paine,	500.00	
Ozias Goodwin Memorial,	675.00	
Henry Lee Memorial,	450.00	
Henry Bromfield Rogers Memorial,	450.00	
George Griswold Van Rensselaer,	250.00	
John Tyndall Scholarship,	500.00	
University Scholarships,	2,950.00	14,025.00
		<hr/>
Amount carried forward,		\$104,053.26

TABLE No. I, CONTINUED.

PAYMENTS.

Amount brought forward,		\$104,058.26
Prizes.		
George B. Sohler,	\$350.00	
John O. Sargent,	100.00	
Robert Treat Paine,	100.00	
Charles Sumner,	100.00	
Robert N. Toppan,	150.00	
Dante,	50.00	750.00
		<hr/>
		\$104,808.26

TABLE No. II.

THE COLLEGE.

RECEIPTS.

From Term Bills.

Instruction,	\$842,880.64	
Receipts from College dormitories, not included in		
University Houses and Lands,	76,161.09	\$418,991.73

Income of Scholarship Funds.

Abbot,	\$165.86
Alford (accumulating),	67.73
Bartlett,	252.72
Bassett,	267.66
Bigelow,	585.71
Samuel A. Borden,	56.59
Bowditch,	5,244.45
Bright, $\frac{1}{2}$ income of Bright Legacy,	1,175.00
Browne,	171.88
Burr,	1,187.17
Ruluff Sterling Choate,	289.66
Class of 1802,	866.60
" 1814,	145.28
" 1815 (Kirkland),	283.88
" 1817,	197.78
" 1828,	160.55
" 1835,	212.11
" 1841,	196.13
" 1852 (Dana),	229.83
" 1858, from special investment,	600.00
" 1867,	161.91
Crowninshield,	522.17

Amounts carried forward, \$12,540.62 \$418,991.73

TABLE NO. II, CONTINUED.

RECEIPTS.

Amounts brought forward,	\$12,540.82	\$418,991.78
George and Martha Derby,	258.55	
Julius Dexter (accumulating),	182.69	
Orlando W. Doe,	100.00	
William Samuel Eliot,	256.57	
Fall River,	61.76	
Farrar,	282.94	
Richard Augustine Gambrill,	502.90	
Charles Haven Goodwin,	282.38	
Greene,	186.40	
Price Greenleaf,	8,000.00	
Ebeneser Rockwood Hoar,	476.20	
Levina Hoar, for the town of Lincoln,	288.16	
Hodges,	548.63	
Hollis,	274.01	
Henry B. Humphrey,	488.06	
William Merrick,	259.67	
Morey,	864.34	
Lady Mowison,	253.75	
Howard Gardner Nichols,	117.50	
Lucy Osgood,	188.28	
Pennoyer. Interest,	\$108.45	
Annuity,	<u>134.20</u>	237.65
Perkins,	188.75	
Wendell Phillips,	63.31	
Rodger (accumulating),	54.19	
Henry Bromfield Rogers,	158.81	
Edward Russell,	250.65	
Sales,	244.54	
Saltonstall,	208.32	
Leverett Saltonstall,	234.86	
Mary Saltonstall,	818.47	
Savage,	300.00	
Sever,	152.28	
Sewall,	484.01	
Shattuck,	2,255.76	
Slade,	275.18	
Story,	198.53	
Stoughton (accumulating),		
Interest,	\$71.58	
Special investment,	<u>100.00</u>	171.58
Gorham Thomas,	192.70	
Toppan,	340.66	
Townsend,	1,165.55	
Walcott,	192.28	
Whiting,	509.10	29,105.58
Amount carried forward,		<u>\$448,097.81</u>

TABLE NO. II, CONTINUED.

RECAPITUL.

Amount brought forward,		\$448,097.81	
Received from the Trustee of the Thayer Scholarships,	\$8,000.00		
" for the Warren H. Cudworth	600.00		
" " George Emerson Lowell	400.00		
" " Matthews Scholarships ($\frac{1}{2}$ of net rents of Hall),	4,782.49	8,782.49	
Other Beneficiary Funds, income of.			
"Exhibitions,"	\$62.65		
Palfrey "Exhibition,"	94.89		
Robert Keyne,	91.41		
William Brattle,	58.56		
Henry Gibbs,	16.36		
Ephraim Flynt,	15.84		
Thomas Danforth,	35.16		
Anne Mills,	7.38		
Thomas Fitch,	26.37		
Benjamin Wadsworth,	9.49		
John Ellery,	14.06		
Henry Flynt,	5.26		
Joseph Sewall,	7.05		
Nathaniel Appleton,	19.69		
Edward Holyoke,	12.64		
Mary Lindall,	34.86		
John Glover (accumulating),	99.78		
Quincy Tufts,	524.28		
Moses Day,	256.10		
Munroe,	495.14		
Samuel Ward, from special investment,	25.00		
Price Greenleaf Aid,	14,254.64		
Dr. Andrew P. Peabody Memorial,	197.78		
Scholarship and Beneficiary Money Returned.			
Returned by beneficiaries,	1,728.37	18,092.90	
Prize Funds, income of.			
Ward Nicholas Boylston Prizes for Elocution,	\$185.65		
James Bowdoin Prizes for Dissertations,	653.72		
Edward Hopkins Gift for "Deturs."			
From Trustees,	\$210.76		
Interest on unexpended balance,	70.73	281.49	
Sales,	49.07	1,169.93	
Funds for Instruction, income of.			
Alford Professorship,	\$1,804.20		
Boylston	1,331.84		
Elliot	1,016.09		
Amounts carried forward,	\$3,652.13	\$476,141.93	

TABLE No. II, CONTINUED.

RECEIPTS.

Amounts brought forward,		\$3,652.13	\$476,141.98
Funds for Instruction, income of (continued).			
Eliot Professorship (Jon. Phillips' Gift), . . .		350.00	
Erving "		164.50	
Fisher "		1,691.58	
Hersey " $\frac{1}{2}$ income of the Fund,		570.12	
Hollis " (Mathematics),		176.11	
Hollis " (Divinity),		1,622.25	
McLean "		2,023.96	
Perkins "		987.00	
Plummer "		1,175.94	
Pope "		2,467.50	
Rumford "		2,662.73	
Smith "		1,087.58	
Fund for Permanent Tutors,		763.28	
Thos. Lee, for the Hersey Professorship,		1,021.97	
Thos. Lee, for Reading,		742.46	
Class Subscription,		7,055.97	
Henry Flynt,		16.17	
Paul Dudley,		146.08	
Professorship of Engineering,		1,917.88	
Abbott Lawrence,		2,892.19	
James Lawrence,		2,367.62	
John B. Barringer,		1,442.29	
Arthur Rotch,		1,175.00	
Gifts for salaries,		4,690.49	42,862.90
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Income of Jonathan Phillips unrestricted Fund, . .		\$1,480.50	
" " John A. Blanchard " " . .		49.35	
" " Daniel H. Pierce " " . .		642.96	
" " J. W. P. Abbot Fund (accumulating), . .		320.59	
" " John E. Thayer "		720.51	
" " Fund for Religious Services,		48.60	
" " Gurney Fund,		9,106.86	
" " Classical Publication Fund of the Class of 1856,		317.44	
" " Increase Sumner Wheeler Fund,		2,350.00	
" " Henry Warren Torrey Fund,		598.22	
" " Elizabeth Torrey Bequest,		35.25	
" " Joseph Lovering Fund for Physical Research,		381.40	
" " Cyrus M. Warren Fund,		278.76	
" " Chauncey Wright Fund,		40.65	
" " George A. Gardner Fund,		259.96	
" " Francis James Child Memorial Fund, . .		208.26	
" " George W. Sawin Fund,		111.00	17,023.31
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Amount carried forward,		\$586,028.14	

TABLE No. II, CONTINUED.

RECEIPTS.

Amount brought forward,		\$536,028.14	
Hemenway Gymnasium.			
For use of lockers,	\$4,263.50		
" " by Graduate,	10.00	4,273.50	
Jefferson Physical Laboratory.			
Income from Endowment,	\$3,525.00		
Interest on unexpended balance,	96.44	3,621.44	
Sanskrit Department.			
Interest on unexpended balance,	\$46.80		
Additional gift from Henry C. Warren,	750.00		
Sale of publications,	214.61	1,011.41	
Botanic Garden and Botanic Museum.			
Income of Botanic Department Fund,	\$1,869.66		
" " Lowell Fund,	3,119.95		
" " John L. Russell Fund,	23.50		
Use of house,	700.00		
Gifts for present use,	5,250.00		
Sale of botanic material to Radcliffe College,	250.00	11,313.11	
Herbarium.			
Income of Fund,	\$1,263.08		
Income of John L. Russell Fund,	70.50		
Received from Asa Gray's copyrights,	2,316.98		
Sale of check lists, contributions, &c.,	57.88		
" " publications,	163.72		
Gifts for present use,	3,910.00	7,082.11	
Classical Department.			
Received from the Phormio copyright,		71.20	
Sundries.			
For use of rooms by College Society,	\$499.99		
Sale of tickets to Commencement Dinner,	700.00		
" " hymn books,	169.98		
" " publications,	1,207.26		
" " old examination papers,	268.12		
Fees for admission and condition examinations,	1,958.00		
Fees for Summer Courses,	\$15,100.00		
Other receipts from Summer Courses,	162.53	15,262.53	
Repayment of advances for books,	51.23		
Laboratory fees received.			
Chemistry,	\$11,316.03		
Mineralogy,	370.00		
Physics,	2,705.00		
Philosophy,	107.50		
Amounts carried forward, \$14,498.53		\$20,117.13	\$563,800.91

TABLE NO. II, CONTINUED.

RECEIPTS.

Amounts brought forward, \$14,498.53		\$20,117.13	\$563,800.91
Hygiene,	285.00		
Engineering,	952.50		
Botany,	885.00		
Zoölogy,	875.00		
Geology,	627.50	18,123.53	
Gifts for books for class-room libraries, &c., . . .		2,956.83	41,196.99
			<u>\$604,497.90</u>

PAYMENTS.

Paid the incumbents of the following Scholarships.

Abbot,	\$100.00
Bartlett,	166.66
Bassett,	210.00
Bigelow,	583.34
Bowditch,	5,000.00
Bright,	933.34
Browne,	150.00
Burr,	600.00
Ruluff Sterling Choate,	300.00
Class of 1802,	300.00
" 1814,	125.00
" 1815 (Kirkland),	200.00
" 1817,	150.00
" 1828,	100.00
" 1835,	150.00
" 1841,	200.00
" 1852 (Dane),	200.00
" 1856,	600.00
" 1867,	150.00
Crowninshield,	833.34
Warren H. Cudworth,	600.00
George and Martha Derby,	250.00
Julius Dexter,	100.00
O. W. Doe,	133.34
William Samuel Eliot,	250.00
Joseph Eveleth,	600.00
Fall River,	60.00
Farrar,	166.66
Richard Augustine Gambrill,	400.00
Charles Haven Goodwin,	300.00
Benjamin D. Greene,	100.00
Price Greenleaf,	2,800.00
Ebenezer Rockwood Hoar,	400.00

Amount carried forward, \$16,711.68

TABLE NO. II, CONTINUED.

PAYMENTS.

Amount brought forward,	\$16,711.68	
Paid the incumbents of the following Scholarships (<i>conf'd</i>).		
Levina Hoar, for the town of Lincoln,	333.34	
Hodges,	200.00	
Hollis,	266.66	
Henry B. Humphrey,	450.00	
George Emerson Lowell,	400.00	
Matthews,	5,300.00	
William Merriek,	200.00	
Morey,	300.00	
Lady Mowison,	200.00	
Pennoyer,	290.00	
Rebecca A. Perkins,	150.00	
Wendell Phillips Memorial,	26.66	
Henry Bromfield Rogers,	150.00	
Edward Russell,	200.00	
Sales,	200.00	
Saltonstall,	100.00	
Leverett Saltonstall,	200.00	
Mary Saltonstall,	250.00	
Savage,	300.00	
Sever,	150.00	
Sewall,	400.00	
Shattuck,	2,200.00	
Slade,	250.00	
Story,	175.00	
Thayer,	3,000.00	
Gorham Thomas,	266.66	
Toppan,	300.00	
Townsend,	1,200.00	
Walcott,	66.66	
Whiting,	466.66	\$34,703.32
Paid other Beneficiaries from the following Funds.		
Exhibitions,	\$62.65	
Palfrey Exhibition,	160.00	
Quincy Tufts,	524.28	
Day,	256.10	
Munroe,	495.14	
Samuel Ward,	25.00	
Price Greenleaf Aid,	14,046.69	
Robert Keyne,	91.41	
William Brattle,	58.56	
Henry Gibbs,	16.36	
Ephraim Flynt,	15.84	
Thomas Danforth,	35.16	
Amounts carried forward,	\$15,827.19	\$34,703.32

TABLE NO. II, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$15,827.19	\$34,708.82
Paid other Beneficiaries from the following Funds (<i>conf'd</i>).		
Anne Mills,	7.88	
Thomas Fitch,	26.87	
Benjamin Wadsworth,	9.49	
John Ellery,	14.05	
Henry Flynt,	5.26	
Joseph Sewall,	7.05	
Nathaniel Appleton,	19.69	
Edward Holyoke,	12.64	
Mary Lindall,	29.57	
Dr. Andrew P. Peabody Memorial,	183.58	
Scholarship and Beneficiary money returned, . . .	637.49	16,779.74
Prizes.		
Boylston Prizes for Elocution,	\$255.00	
Ropes Prize,	100.00	
Sales,	45.00	
"Deturs" from Hopkins Donation,	221.61	621.61
Sundry payments made from Special Funds.		
John E. Thayer Fund.		
Expenses of Quarterly Journal of Economics, . .	\$680.31	
Henry Warren Torrey Fund.		
Expenses on account of Harvard Historical Studies, .	2,920.06	
Cyrus M. Warren Fund.		
Expenses in Chemical Department,	82.46	
George A. Gardner Fund.		
Photographs, &c., for Geological Department, . .	212.90	
Chauncey Wright Fund.		
Books for Mathematical Department,	5.09	
Stoughton Scholarship Fund.		
Expenses on account of Stoughton Pasture, . . .	496.00	
The Joseph Lovering Fund for Physical Research,		
Paid sundry accounts,	376.30	
Charles Fairchild's gift for Geological Dep't,		
Expenses in Geological Department,	310.97	5,084.09
Jefferson Physical Laboratory.		
Spent on building and fixtures,	\$296.00	
Laboratory expenses,	\$5,538.35	
Less part paid by the College,	600.00	4,938.35
Botanic Garden and Botanic Museum.		
Salaries, labor, repairs, materials, &c.,	\$9,517.18	
Interest on advances,	729.06	10,246.24
Amount carried forward,		\$72,669.35

TABLE NO. II, CONTINUED.

PAYMENTS.

Amount brought forward,		\$72,669.35	
Herbarium.			
Salaries, labor, repairs, materials, &c.,			8,092.97
Hemenway Gymnasium.			
Salaries and wages,		\$7,077.29	
Janitors and cleaning,		2,405.98	
Fuel, water, gas, printing, and sundries,		2,699.71	
Repairs and improvements,		789.44	
Apparatus,		750.00	\$13,722.42
Less amount received from other departments,		1,669.12	12,053.30
Appleton Chapel.			
Preaching and morning services,		\$3,307.25	
Organist and Choir-master,		1,750.00	
Choir,		1,500.00	
Music and binding,		319.28	
Fuel, gas, cleaning, &c.,		762.85	
Services and wages,		236.85	7,876.23
Summer Schools.			
Salaries,		\$10,455.50	
Clerical services,		400.00	
Supplies, materials, cleaning, &c.,		480.56	
Printing,		511.75	
Advertising,		826.50	
Instruments and apparatus,		148.07	
Stationery and postage,		804.52	
Furniture,		40.00	12,676.89
Paid from gifts for books for Political Economy Dept.,		\$49.90	
" " " " " " French "		105.43	
" " " " " " German "		202.69	
" " " " " " Sanskrit "		614.01	
" " " " " " English "		55.16	
" " " " " " Social Questions,		21.52	
" " " " " " Classical Library,		168.66	
" " " " " " Historical "		143.41	1,360.78
Paid from gifts for illustrated lectures in Latin and Greek Departments,			
		\$48.09	
Paid from gifts for Psychological Laboratory and Library,		234.87	
" " " " Harvard Oriental Series,		63.35	
" " " " Cryptogamic Herbarium,		397.78	739.04
Amount carried forward,			\$115,468.56

TABLE NO. II, CONTINUED.

PAYMENTS.

Amount brought forward,		\$115,468.56	
Appropriations for collections, laboratories, &c.			
Physical apparatus (Prof. Trowbridge),	\$1,000.00		
Chemistry (Prof. H. B. Hill),	500.00		
Mineralogy and fittings (Prof. Wolff),	500.00		
Petrography (Prof. Wolff),	150.00		
Geology (Prof. Davis),	600.00		
Mining and Metallurgy (Asst. Prof. Smythe),	139.03		
Botany (Prof. Goodale),	250.00		
Botany (Prof. Farlow),	200.00		
Zoölogy (Prof. Mark),	350.00		
Zoölogy, for publications,	400.00		
Psychology and Psychological Review (Prof. James), .	350.00		
Fine Arts and Drawing (Prof. Moore),	350.00		
Anthropology (Prof. F. W. Putnam),	200.00		
Laboratory fees appropriated,	17,171.03		
Fuel and services in Nat. Hist. Laboratories,	1,500.00		
Fuel, services, &c., in Jefferson Ph. Laboratory, . . .	600.00	24,260.06	
Salaries.			
Instruction,	\$316,796.81		
Deans,	4,000.00		
Chairmen of Committees,	1,700.00		
Medical Visitor, Recorder, Secretary and Curator, .	4,450.00		
Examination Proctors,	1,574.50	328,520.81	
Payments for College Edifices not valued on Treasurer's books.			
Cleaning and care,	\$17,408.21		
Insurance,	1,185.44		
Repairs, improvements, &c.,	15,498.16	34,041.81	
General Expenses.			
Deans and Chairmen of Committees, clerical and office expenses,	\$9,581.84		
Commission on Admission to N. E. Colleges,	110.93		
Reading examination books,	2,138.24		
Services of proctors,	1,489.74		
" " assistants to instructors,	4,238.62		
" " undergraduates,	439.20		
" " mechanics in department of Physiology and Hygiene,	900.00		
Services of mechanics in department of Electrical Engineering,	1,017.50		
Services of mechanics in department of Mechanical Engineering,	1,499.83		
Amounts carried forward,		\$21,475.40	\$502,291.24

TABLE NO. II, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$31,475.40	\$502,291.24
General Expenses (continued).		
Attendants in department libraries and laboratories,	2,166.25	
Admission examinations,	2,297.46	
Lawrence Scientific School Scholarships and assistance,	8,900.00	
Electric power,	680.00	
Pews hired in Cambridge churches,	1,737.50	
Commencement Dinner,	692.96	
Fuel,	6,755.24	
Water,	1,280.55	
Lighting,	4,120.26	
Printing office, expenses,	\$15,492.08	
Less receipts,	<u>10,967.57</u>	
Printing,	4,524.51	
Furniture,	1,434.30	
Furniture,	3,704.44	
Instruments and apparatus,	1,189.35	
Stationery and postage,	1,504.53	
Books,	1,280.76	
Binding,	157.45	
Advertising,	1,469.58	
Watchmen,	919.62	
Freight, diplomas, and sundries,	1,404.15	
Supplies, tools, and materials,	2,052.89	
Music, Class-Day,	125.00	
Cleaning and hanging portraits,	50.15	
Lantern slides,	107.28	
Photographs, mounting and frames,	1,206.65	
Reception to Freshmen,	94.50	
Use of Grays 18 by English department,	100.00	
Repayment to Museum of Comparative Zoölogy for expenditures on behalf of the Undergraduate Department,	5,000.00	71,820.77
		<u>\$578,612.01</u>

TABLE NO. III.

THE LIBRARY.

RECEIPTS.

Income of the following Funds for the purchase of books.	
Subscription for Library (1859),	\$495.99
Nathaniel I. Bowditch,	100.06
Bright, $\frac{1}{2}$ income of the Bright Legacy,	<u>1,175.00</u>
Amount carried forward,	\$1,771.05

TABLE NO. III, CONTINUED.

RECEIPTS.

Amount brought forward,	\$1,771.05	
Income of the following Funds, &c. (continued).		
Constantius, $\frac{1}{2}$ of income,	611.85	
Edwin Conant, $\frac{1}{2}$ of income,	827.24	
Denny,	248.38	
Eliza Farrar,	248.80	
Horace A. Haven,	148.48	
Francis B. Hayes,	472.68	
George Hayward,	248.25	
Thomas Hollis,	112.09	
Sidney Homer,	102.18	
Frederick A. Lane,	248.77	
Lowell,	1,136.22	
Charles Minot,	2,869.63	
Lucy Osgood,	834.59	
Mary Osgood,	828.91	
Francis Sales,	196.04	
Stephen Salisbury,	250.98	
Sever,	944.46	
Samuel Shapleigh,	187.15	
George B. Sohler (part of),	56.96	
Charles Sumner,	1,762.12	
Isabod Tucker, from special investment, . . .	200.00	
James Walker,	746.41	
Thomas W. Ward,	248.68	
Executors of Robert Waterston, interest on un- expended balance,	32.19	
J. Huntington Wolcott,	472.96	14,907.82
James Savage Fund for general expenses ($\frac{1}{2}$ of income),	\$1,255.50	
Constantius " " " $\frac{1}{2}$ " "	611.84	
Edwin Conant " " " $\frac{1}{2}$ " "	981.71	
Daniel Treadwell " " "	580.47	
Daniel Austin " " "	292.81	
Eben Wright " " "	4,700.00	
Jarvis " " "	23.50	
Price Greenleaf " " "	14,254.64	22,680.47
Fees for use of Library,	\$100.00	
Sale of duplicate books,	57.30	
" " Memorial biography,	4.00	
Gift for cataloguing Slavic books,	100.00	
" of unexpended balances of subscriptions for Pro- fessor Sophocles' portrait,	61.12	
Received for books lost,	37.53	
Fines,	5.25	
Gifts for books,	216.46	581.66
		<u>\$37,569.45</u>

TABLE No. III, CONTINUED.

PAYMENTS.		
For Books, from		
Subscription Fund (1859),	\$496.25	
Bowditch "	116.98	
Bright "	1,191.67	
Conant "	857.48	
Constantine Fund,	691.89	
Denny "	244.36	
Farrar "	267.47	
Haven "	154.24	
Hayes "	476.96	
Hayward "	271.78	
Hollis "	109.85	
Homer "	189.32	
Lane "	255.70	
Lowell "	872.88	
Minot "	8,409.74	
Lucy Osgood "	282.99	
Mary Osgood "	269.47	
Sales "	307.02	
Salisbury "	301.65	
Sever "	777.89	
Shapleigh "	193.65	
Sohier "	48.05	
Sumner "	1,737.60	
Tucker "	194.40	
Walker "	753.56	
Ward "	243.70	
J. Huntington Wolcott Fund,	453.36	
Wales Gift,	8.98	
Coolidge Gifts,	170.36	
Gardner Gift,	78.95	
Dante Society Gift,	42.85	
Duplicate money,	51.98	\$14,980.18
Salaries,	\$13,666.66	
Services and wages,	17,031.51	
Repairs and improvements,	1,706.11	
Janitors and cleaning,	810.56	
Fuel,	1,084.95	
Water,	18.45	
Lighting,	1,096.56	
Printing,	1,791.35	
Furniture,	1,282.81	
Stationery and postage,	451.85	
Binding,	2,232.17	
Freight, supplies, and sundries,	699.49	
Cataloguing, from gift,	79.50	
Gore Hall alterations,	1,581.62	43,533.59
		\$58,463.77

TABLE No. IV.
DIVINITY SCHOOL.

RECEIPTS.

Income of the following Funds applicable to Salaries.

Divinity School, balance,	\$1,594.39	
Benjamin Bussey Professorship,	1,766.45	
Parkman Professorship,	752.75	
John Hancock Professorship,	\$282.88	
C. L. Hancock. Interest,	2,823.76	
From special investments,	801.14	3,907.28
Winn Professorship of Ecclesiastical History,	2,413.26	
Frothingham Professorship,	1,738.81	
Samuel Dexter,	953.16	
Henry Lienow,	481.69	
Mary P. Townsend,	246.75	
Winthrop Ward,	98.70	
Samuel Hoar,	49.85	
Abraham W. Fuller,	49.85	
Caroline Merriam,	49.85	
Joseph Baker,	370.12	
Thomas Tileston of New York Endowment,	1,880.00	
Henry P. Kidder,	470.00	
Oliver Ames,	799.00	
Abby Crocker Richmond,	47.00	
New Endowment (1879),	3,957.07	
William B. Spooner,	470.00	<u>\$21,444.88</u>

Income of Scholarship and Beneficiary Funds.

Jackson Foundation,	\$677.08	
Thomas Cary,	245.72	
George Chapman,	121.02	
Joshua Clapp,	199.70	
J. Henry Kendall,	235.23	
Nancy Kendall,	156.84	
William Pomroy,	49.85	
Abner W. Buttrick,	612.46	
Beneficiary money returned (balance),	171.78	<u>2,469.18</u>

Income of other Funds.

Joshua Clapp,	\$102.37	
Hannah C. Andrews,	24.67	
Lewis Gould,	42.82	
Daniel Austin,	41.88	
Adams Ayer,	47.00	
John W. Quinby,	81.17	
John L. Russell,	47.00	
Edwin Conant,	235.00	
Amounts carried forward,	<u>\$621.86</u>	<u>\$23,913.56</u>

TABLE No. IV, CONTINUED.

RECEIPTS.

Amounts brought forward,	\$621.86	\$22,913.56
Income of other Funds (continued)		
Louisa J. Hall,	26.18	
Rushton Dashwood Burr,	142.22	
Benjamin Bussey Trust ($\frac{1}{4}$ of net income for use of this School),	4,520.70	5,310.96
Gift from Society for Promoting Theological Education,	\$1,989.57	
Sale of duplicate books, &c.,	3.85	
“ “ tickets to Alumni Dinner,	34.50	
Fines,	4.90	
Term Bills.		
Instruction,	\$2,952.22	
Receipts from Divinity Hall,	2,805.00	5,817.22
		7,850.04
		<u>\$37,074.56</u>

PAYMENTS.

Salaries for instruction,	\$24,337.65	
Secretary and Librarian,	1,750.00	
Services and wages,	454.80	
Cataloguing,	1,253.84	
Labor, repairs, and improvements,	1,482.24	
Cleaning and care of rooms,	1,200.48	
Fuel,	427.75	
Water,	74.00	
Lighting,	312.73	
Printing,	291.98	
Furniture,	173.61	
Stationery and postage,	74.43	
Books,	450.41	
Binding,	70.90	
Advertising,	628.14	
Diplomas, and sundries,	198.61	
Taxes and betterments on Chelsea Real Estate,	36.12	
Collation,	65.00	
Proportion of expenses of Gymnasium,	120.62	\$33,422.80
Paid the incumbents of the following Scholarships:		
Jackson Foundation,	\$693.34	
Thomas Cary,	200.00	
George Chapman,	100.00	
Joshua Clapp,	180.00	
J. Henry Kendall,	266.66	
Nancy Kendall,	140.00	1,580.00
Amount carried forward,		<u>\$35,002.80</u>

TABLE NO. IV, CONTINUED.

PAYMENTS.

Amount brought forward,		\$35,002.80
Paid beneficiaries from the following Funds:		
Abner W. Buttrick,	\$533.33	
William Pomroy,	48.92	582.25
Paid for Books from the following Funds:		
Louisa J. Hall,	\$2.08	
Eushton Dashwood Burr,	38.86	40.88
		<u>\$35,625.43</u>

TABLE NO. V.

LAW SCHOOL.

RECEIPTS.

Income of the following Funds.		
Law School, balance,	\$6,269.00	
Nathan Dane Professorship,	740.26	
Benjamin Bussey "	1,127.08	
Isaac Royall "	392.08	
Weld "	4,464.76	
Bemis "	2,821.22	
Law School Book Fund,	2,209.99	
Benjamin Bussey Trust ($\frac{1}{4}$ of net income for use of this School),	4,520.70	
John Foster Fund, income for Law Students every second year,	149.04	
Scholarship money returned,	17.84	\$32,711.89
Term Bills, instruction,		71,727.00
Sale of books,		8.00
" " Quinquennial Catalogue,		1.50
Repayment of Scholarship money with interest,		508.00
		<u>\$94,950.89</u>

PAYMENTS.

Salaries for instruction,	\$37,000.00
Librarian and Assistants,	4,296.96
Secretary,	625.00
Reader to the Dane Professor,	460.50
Services of proctors,	184.00
Scholarships,	2,600.00
Repairs and improvements,	723.97
Amount carried forward,	<u>\$45,890.43</u>

TABLE No. V, CONTINUED.

PAYMENTS.

Amount brought forward,	\$45,890.43	
Janitor, cleaning, &c.,	1,628.07	
Fuel,	803.61	
Water,	100.50	
Lighting,	1,028.55	
Printing,	452.21	
Furniture,	1,197.34	
Stationery and postage,	295.31	
Books,	10,938.98	
Binding,	1,364.92	
Advertising,	100.00	
Freight, diplomas, and sundries,	714.89	
Proportion of expenses of Gymnasium,	1,348.50	
Austin Hall alterations,	18,222.10	
Insurance,	50.00	\$84,335.45

TABLE No. VI.

MEDICAL SCHOOL.

RECEIPTS.

Income of the following Funds.

Medical School, balance,	\$8,442.00
Jackson,	902.07
Warren, for Anatomical Museum,	650.90
Ward Nicholas Boylston, for Medical Prizes,	161.96
Ward Nicholas Boylston, " " Books,	179.54
George C. Shattuck,	805.06
George Fabyan,	4,700.00
John B. and Buckminster Brown,	44.18
Hersey Professorship, $\frac{1}{2}$ income of the fund,	380.08
Medical Library,	60.25
Quincy Tufts,	94.00
David Williams Cheever Scholarship,	261.55
Isaac Sweetser Scholarship,	287.99
O. W. Doe "	100.00
C. M. Jones "	286.84
Charles Pratt Strong Scholarship,	186.08
Alfred Hosmer Linder "	237.63
Lewis and Harriet Hayden "	263.18
Edward Wigglesworth "	107.72
George Cheyne Shattuck Memorial Fellowship,	245.10
John Ware " "	244.68
Charles Eliot Ware " "	255.73

Amount carried forward, \$18,901.42

TABLE NO. VI, CONTINUED.

RECEIPTS.

Amount brought forward,	\$13,901.42	
Edward M. Barringer,	1,199.11	
William H. Thorndike Prize,	241.49	
Henry Harris, $\frac{1}{2}$ of income,	703.57	
Mary W. Swett,	740.95	
Samuel W. Swett,	940.00	
Samuel E. Fitz,	86.29	
J. Ingersoll Bowditch,	287.83	
New subscription (1888),	1,821.25	
Surgical Laboratory,	19.60	
William O. Moseley,	685.40	\$20,626.91
Gifts for present use,		2,551.51
Term Bills.		
Instruction,	\$105,572.50	
Graduation fees,	2,130.00	
In Chemical Laboratory, breakage and chemicals, .	1,566.93	
In Practical Anatomy, use of material,	1,098.00	
In Embryology and Histology, use of material, and fines,	22.85	
In Operative Surgery, fees,	159.00	
Examination fees and fines,	1,070.00	111,618.73
From Dental and Veterinary Schools for Laboratory instruction, .		2,868.00
Repayment of advances for the purchase of microscopes,		847.00
Use of room by Harvard Coöperative Society,		150.00
Sale of old material,		8.50
		<u>\$138,665.70</u>

PAYMENTS.

Boylston Medical Prizes.		
Prizes,	\$150.00	
Advertising,	87.50	\$187.50
Warren Anatomical Museum.		
Expenses and additions to collection,		569.86
J. Ingersoll Bowditch Fund, Physiological apparatus, &c., .		328.24
George Fabyan Fund, wages and expenses,		161.65
Ellis Gifts, Expenses and salaries, Physiology and Pathological Bacteriology,		741.80
Boylston Fund for Books, books and binding,		337.86
Sear's Gift, books,		251.51
Edward M. Barringer Scholarship No 1, . \$800.00		
" " " " " 2, . 200.00	\$500.00	
David Williams Cheever Scholarship,	200.00	
Isaac Sweetser Scholarship,	250.00	
O. M. Jones "	250.00	
O. W. Doe "	100.00	
Amounts carried forward,	\$1,300.00	\$2,598.44

TABLE NO. VI, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$1,800.00	\$2,598.44
Charles Pratt Strong Scholarship,	60.00	
Alfred Hooper Linder "	200.00	
Lewis and Harriet Hayden "	161.75	
Joseph Eveleth Scholarships,	520.00	
John Ware Memorial Fellowship,	248.00	
Charles Eliot Ware Memorial Fellowship,	225.00	
George Cheyne Shattuck Memorial Fellowship,	225.00	
Faculty Scholarships,	720.00	
Beneficiaries from John Foster income,	150.00	8,809.75
Chemistry,	\$1,452.41	
Physiology,	600.00	
Anatomy,	1,000.00	
Pathology,	600.00	
Bacteriology,	500.00	
Obstetrics,	125.00	
Histology and Embryology,	1,416.00	
Therapeutics and Hygiene,	200.00	
Pharmacology,	743.74	
Clinical Medicine,	250.00	
Bandaging and apparatus,	150.00	7,087.15
Graduates courses, fees repaid to Instructors,	\$2,785.00	
Summer " " " " "	2,972.00	5,757.00
Salaries for instruction,		86,685.88
General Expenses.		
Dean, and Secretary,	\$800.00	
Repairs and improvements,	5,219.01	
Janitor and cleaning,	5,508.86	
Fuel,	2,027.48	
Water,	1,249.20	
Lighting,	2,191.22	
Printing,	378.71	
Furniture,	427.59	
Instruments and apparatus,	92.30	
Stationery and postage,	796.07	
Advertising and catalogues,	1,000.00	
Insurance,	124.00	
Proctors,	585.00	
Collation,	238.20	
Mechanics and laboratory attendants,	5,337.84	
Legal services,	829.50	
Electric power,	564.06	
Freight, diplomas, and sundries,	667.30	
Supplies and material,	1,514.98	
Desk at Marine Biological Laboratory at Woods Holl,	100.00	29,681.27
		\$185,519.44

TABLE No. VII.
DENTAL SCHOOL.

RECEIPTS.

Income of the following Funds.		
Dental School, balance,	\$743.45	
Endowment,	717.03	
Gifts for new building,	453.56	\$1,914.04
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Term bills for instruction,	\$19,181.00	
Fees from Laboratory,	2,764.52	21,945.52
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From Veterinary School for Laboratory instruction,		220.00
Fees from Infirmary,		6,860.62
Gifts for present use,		45.00
Repayment of advances for the purchase of microscopes,		99.00
Sales,		10.00
		<hr/>
		\$30,544.18
		<hr/>

PAYMENTS.

Salaries for instruction,	\$11,550.00	
Curator,	50.00	
Summer Courses, fees repaid to Instructors,	250.00	
Medical School, for instruction,	2,400.00	
Proctors,	80.30	
Repairs and improvements,	1,795.79	
Janitors and cleaning,	1,329.86	
Fuel,	585.80	
Water,	97.30	
Lighting,	220.20	
Printing,	273.28	
Furniture,	497.91	
Instruments and apparatus,	1,870.47	
Stationery and postage,	280.72	
Advertising,	412.74	
Services and wages,	765.70	
Supplies, &c.,	4,824.49	
Freight, diplomas, and sundries,	474.88	
Chemical apparatus,	500.00	\$28,209.59
		<hr/>

TABLE No. VIII.

MUSEUM OF COMPARATIVE ZOÖLOGY.

RECEIPTS.

Income of the following Funds.

Balance,	\$12.45	
Gray Fund for Zoölogical Museum,	2,350.00	
Agassiz Memorial, interest,	\$18,516.12	
From special investment,	517.80	14,068.92
Teachers and Pupils,		856.92
Humboldt,		868.88
Permanent Fund for Museum of Zoölogy,		5,521.04
Virginia Barret Gibbs Scholarship,		257.84
Sturgis Hooper,	4,700.00	\$27,596.00

PAYMENTS.

Paid on the order of the Faculty of the Museum of Comparative Zoölogy, from the following Funds.

Gray,	\$2,350.00	
Agassiz Memorial, general expenses,	12,799.25	
Teachers and Pupils,	856.92	
Humboldt,	868.88	
Permanent,	5,521.04	\$21,891.04
Sturgis Hooper, Professor of Geology, and expenses,	\$829.10	
Virginia Barret Gibbs Scholarship,	250.00	579.10
		\$21,970.14

TABLE No. IX.

PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY
AND ETHNOLOGY.

RECEIPTS.

Income of the following Funds.

Peabody Professor.	From investments, \$1,524.77	
	“ Trustees,	226.43 \$1,751.20
Peabody Collection.	“ investments, \$1,524.77	
	“ Trustees,	311.33 1,836.10
Peabody Building.	“ investments, \$918.34	
	“ Trustees,	2.08 916.42
Amount carried forward,		\$4,503.72

TABLE No. IX, CONTINUED.

RECEIPTS.

Amount brought forward,	\$4,502.72	
Income of the following Funds (continued).		
Huntington Frothingham Wolcott,	470.00	
Thaw,	578.89	
Hemenway. From investments,	\$255.05	
" Trustees,	889.80	1,144.85
Robert C. Winthrop Scholarship,	240.40	\$6,936.86
Gifts for present use,	\$683.40	
Term bills for instruction,	288.50	
Sale of publications,	2.40	969.80
		<u>\$7,906.16</u>

PAYMENTS.

Paid from the following Funds.		
Peabody Professor,	\$1,721.64	
Peabody Collection,	1,195.86	
Peabody Building,	915.42	
Huntington Frothingham Wolcott,	680.00	
Thaw,	550.00	
Hemenway,	201.00	
Robert C. Winthrop Scholarship,	200.00	5,463.92
From gifts for present use and fees for instruction, .		910.80
		<u>\$6,874.72</u>

TABLE No. X.

OBSERVATORY.

RECEIPTS.

Income of the following Funds.		
Balance,	\$44.88	
Edward B. Phillips,	5,183.82	
James Hayward,	987.00	
Robert Treat Paine,	12,857.23	
Paine Professorship of Practical Astronomy, . . .	2,350.00	
Uriah A. Boyden,	9,820.37	
Augustus Story,	628.86	
David Sears,	1,496.71	
Josiah Quincy,	451.48	
James Savage ($\frac{1}{4}$ of net income),	418.50	
Charlotte Harris,	94.00	
Thomas G. Appleton,	235.00	
J. Ingersoll Bowditch,	117.50	
New Endowment (1882),	2,350.00	
Amount carried forward,		\$57,085.80

TABLE NO. X, CONTINUED.

RECEIPTS.

Amount brought forward,		\$37,085.80
Sale of Observatory publications,	\$90.02	
" " grass,	20.00	110.02
Mrs. Henry Draper, gift for special research (ad-		
ditional),	\$9,999.96	
Interest on unexpended balance,	141.00	10,140.96
Miss Catherine W. Bruce's gift,		
Interest on unexpended balance,	\$48.18	
M. C. Pickering, gift to repay interest charged on		
advances, in 1895-96,	141.80	
Use of house by College officer,	600.00	789.48
		<u>\$48,075.76</u>

PAYMENTS.

From Uriah A. Boyden Fund, supplies, apparatus, services, &c.,	\$9,929.74	
" Draper Memorial, supplies, apparatus, services, &c., . . .	12,447.67	
" Bruce gift, supplies, apparatus, &c.,	1,941.68	
" Josiah Quincy Fund, printing Observatory publications,	254.49	
Salaries,	\$9,650.00	
Services and wages,	7,358.81	
Repairs and improvements on buildings and grounds, . .	3,055.45	
Cleaning and care of Observatory,	519.68	
Fuel,	311.78	
Water,	15.50	
Lighting,	50.10	
Printing,	2,198.28	
Furniture,	214.12	
Instruments and apparatus, including repairs on same, .	209.71	
Stationery, postage, and telegraphing,	581.83	
Books,	425.48	
Binding,	354.78	
Supplies and materials,	745.35	
Freight, chemicals, and sundries,	283.95	
Use of house,	90.00	
Electric apparatus and motor,	845.50	26,360.07
		<u>\$50,933.00</u>

TABLE No. XI.
BUSSEY INSTITUTION.

RECEIPTS.

Interest on unexpended balance,	\$523.25	
Bussey Trust ($\frac{1}{2}$ net income),	9,041.40	
Fees for instruction,	800.00	
Sale of wood, hay, and sundries,	819.80	
Horticultural Department, prizes, sale of flowers, plants, &c.,	2,144.78	
Board of horses, cattle, &c.,	3,687.38	
Use of house by College officer,	573.70	
Repayment on account of salaries for 1895-96,	189.18	
Insurance on Whitney barns,	3,990.00	<u>21,268.94</u>

PAYMENTS.

Salaries,	\$5,400.00	
Services and wages,	2,438.23	
Repairs and improvements,	4,554.45	
Fuel,	213.68	
Gas,	70.14	
Printing,	40.50	
Furniture,	1.50	
Books,	188.18	
Binding,	3.45	
Advertising,	71.00	
Horticultural Department, expenses,	2,593.38	
Grain, farming tools, &c.,	888.49	
Sundries,	55.54	<u>\$16,468.53</u>

James Arnold Fund.

Receipts.

Income of Fund,	\$7,885.53
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Payments.

19/20 of income carried to Arnold Arboretum,	\$7,016.26
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Arnold Arboretum.

Receipts.

Income from James Arnold Fund,	\$7,016.26	
Interest on gifts for construction account,	51.46	
Interest on deposit,	11.73	
Sale of grass and materials,	2,984.85	<u>\$10,064.30</u>

Payments.

Salary of Director and Assistant,	\$3,500.00	
Expenses of Arboretum, services, labor, &c.,	6,204.12	
Specimens and expenses for Herbarium and Museum,	792.46	
Books,	83.14	<u>\$10,529.72</u>

TABLE No. XII.

SCHOOL OF VETERINARY MEDICINE.

RECEIPTS.

Term bills, for instruction,	\$6,377.39	
" " " graduation fees,	680.00	
Fees for use of microscopes,	114.00	\$7,061.39
Fees from Hospital and Forge,	\$14,683.01	
Interest on deposit with New England Trust Co., . . .	10.33	
Use of room by State of Massachusetts,	88.67	
Gifts for Charity Hospital,	938.00	
Gift for present use,	800.00	16,448.01
		<u>\$23,499.40</u>

PAYMENTS.

Salaries for instruction,	\$8,750.00	
Medical School, for instruction,	468.00	
Dental School, for instruction,	220.00	
Clerk,	350.00	
Services and wages,	7,562.66	
Scholarships,	240.00	
Repairs and improvements,	866.25	
Fuel,	880.13	
Water,	82.50	
Lighting,	462.50	
Printing,	143.70	
Furniture,	25.95	
Instruments and apparatus,	186.10	
Stationery, postage, telephone, &c.,	588.72	
Advertising,	243.12	
Taxes,	259.29	
Insurance,	60.00	
Hay, grain, supplies, &c.,	5,189.14	
Freight, diplomas, and sundries,	228.88	
Interest on advances,	1,220.30	
Rent,	1,480.00	\$28,986.74

TABLE No. XIII.
MISCELLANEOUS FUNDS.

Bussey Trust.

Receipts.

Net income from Real Estate, \$22,870.20

Payments.

Annuities,	\$4,000.00	
Expenses on Bussey portraits and furniture,	254.70	
Repairing Bussey tomb,	82.70	
One-half of the remaining income to Bussey Institution,	9,041.40	
One-quarter " " Divinity School,	4,520.70	
" " " " Law School,	4,520.70	\$22,870.20

Price Greenleaf Fund.

Receipts.

Income of special investment, \$31,509.28

Payments.

Scholarships,	\$3,000.00	
Beneficiary money transferred to College account,	14,254.64	
Balance of income for Library expenses,	14,254.64	31,509.28

Gray Fund for Engravings.

Receipts.

Interest on Fund, \$753.17

Payments.

To the Treasurer of the Museum of Fine Arts, \$432.18

Woodland Hill Fund.

Receipts.

Interest on Fund, \$332.43

Payments.

Filling Muddy River lot,	\$76.42	
Taxes,	801.84	
Plans and surveys,	515.00	\$1,393.26

TABLE No. XIII, CONTINUED.

Daniel Williams Fund.*Receipts.*

Interest on Fund,		\$769.62
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Payments.

Treasurer of Mashpee Indians,	\$515.35	
“ “ Herring Pond Indians,	128.84	\$644.19

Sarah Winslow Fund.*Receipts.*

Interest on Fund,		\$225.18
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Payments.

Minister at Tyngsborough, Mass.,	\$110.27	
Teacher at “ “	110.27	
Commission on income, credited to University,	5.63	\$226.17

Class Funds.*Receipts.*

Class of 1834, income of special investment,	\$40.00	
“ “ 1853, “ “ “ “	155.53	\$195.53

Payments.

To Secretary of the Class of 1853,		\$155.53
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John Witt Randall Fund.*Receipts.*

Interest on Fund,	\$1,394.77	
Insurance,	562.08	\$1,956.85

Payments.

Salary of Curator and expenses,		\$1,789.58
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TABLE No. XIII, CONTINUED.

Sundry Accounts.*Receipts.*

Gospel Church Fund (accumulating).		
Interest on Fund,	\$257.85	
Robert Troup Paine Fund (accumulating).		
From special investment,	1,847.50	
Gore Annuity Fund, interest,	938.20	
O. W. Doe Scholarship Fund.		
Part of interest on Fund,	47.31	
Henry Willard Williams Fund, interest,	1,895.17	
Anonymous Fund, interest,	236.32	
Gains and Losses for General Investments, gain on		
General Electric Co. bonds sold,	12,512.50	
Woodland Hill Fund, for land taken by the Metropolitan		
Park Commission,	1,953.00	
School of Veterinary Medicine, from University account		
to provide for the deficit in 1896-97,	5,487.34	\$24,654.69

Payments.

Gore Fund, annuity,	\$300.00	
Henry Willard Williams Fund, annuity,	1,895.17	
Gurney Fund, annuities,	1,000.00	
Anonymous Fund, annuity,	200.00	
Advances to Botanic Department, repaid in part,	966.87	
Price Greenleaf Fund, loss from change of special		
investments,	62.50	
Bursar's sundry accounts,	3,147.91	\$7,572.45

GENERAL SUMMARY OF THE TABLES.

Table.	Receipts.	Payments.
I. University,	\$155,494.85	\$104,808.26
II. College,	604,497.90	578,612.01
III. Library,	87,569.45	58,463.77
IV. Divinity School,	87,074.56	35,625.43
V. Law School,	94,950.89	84,335.45
VI. Medical School,	138,665.70	135,519.44
VII. Dental School,	80,544.18	75,909.50
VIII. Museum of Comparative Zoölogy,	27,598.00	21,970.14
IX. Peabody Museum of American Archae- ology and Ethnology,	7,906.16	6,874.72
X. Observatory,	49,075.76	50,988.60
XI. { Bussey Institution,	21,268.94	18,468.53
James Arnold Fund,	7,885.58	7,016.26
Arnold Arboretum,	10,064.80	10,529.72
XII. School of Veterinary Medicine,	23,499.40	28,986.74
Bussey Trust,	22,870.20	22,870.20
Price Greenleaf Fund,	31,509.28	31,509.28
Gray Fund for Engravings,	753.17	432.18
Woodland Hill Fund,	332.43	1,398.26
XIII. { Daniel Williams Fund,	769.62	544.10
Sarah Winslow Fund,	225.18	226.17
Class Funds,	195.53	155.53
John Witt Randall Fund,	1,956.85	1,789.58
Sundry Accounts,	24,654.69	7,572.45
	<hr/>	<hr/>
	\$1,327,360.57	\$1,228,941.50
	1,228,941.50	
	<hr/>	<hr/>
Balance,	\$98,419.07	

Which is the net increase of the Funds and balances, excluding gifts for capital account, as also shown on page 89.

Certificate of the Committees of the Corporation and Overseers of Harvard College, for examining the Books and Accounts of the Treasurer entered in the Journal kept by him.

The committees appointed by the Corporation and Overseers of Harvard College to examine the books and accounts of the Treasurer for the year ending July 31, 1897, have, with the assistance of an expert chosen by them, examined and audited the Cash book covering the period from August 1, 1896, to July 31, 1897, inclusive, and have seen that all the bonds, notes, mortgages, certificates of stock, and other evidences of property, which were on hand at the beginning of said year, or have been received by him during said year, are now in his possession, or are fully accounted for by entries made therein; they have also noticed all payments, both of principal and interest, indorsed on any of said bonds or notes, and have seen that the amounts so indorsed have been duly credited to the College.

They have in like manner satisfied themselves that all the entries for moneys expended by the Treasurer, or charged in his books to the College, are well vouched; such of them as are not supported by counter entries being proved by regular vouchers and receipts.

They have also seen that all the entries for said year are duly transferred to the Ledger, and that the accounts there are rightly cast, and the balances carried forward correctly to new accounts.

(Signed,)

HENRY L. HIGGINSON, { *Committee on the part of the Corporation.*

MOSES WILLIAMS,
CHAS. H. PARKER,
ISRAEL M. SPELMAN, . { *Committee on the part of the Board of Overseers.*
JACOB C. ROGERS,
JOHN L. GARDNER,
F. L. HIGGINSON, }

Boston, January 4, 1898.

ANNUAL REPORTS

OF

THE PRESIDENT AND THE TREASURER

OF

fr. **HARVARD COLLEGE**

1897-98

CAMBRIDGE

Published by the University

1899

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OF
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PRESIDENT'S REPORT FOR 1897-98.

TO THE BOARD OF OVERSEERS :—

The President of the University has the honor to submit the following Report for the academic year 1897-98, namely, from September 30, 1897, to September 29, 1898 :—

Justin Winsor, Librarian, died on the 22d of October, 1897, in the sixty-seventh year of his age. He had served the University for twenty years in the prime of his powers. When he became University Librarian he had already attained eminence as the Librarian of the Boston Public Library; and he brought to the University the library policy which he had there developed. His main object as a Librarian was to get books profitably used. He thought "nothing of more importance than the provision of large classes of books to which unrestricted access could be had." He had great skill in devising the mechanical arrangements and modes of service which facilitate the use of books. Accordingly the University Library during his administration became a new intellectual resource and appliance for both teachers and students, and an invaluable means of promoting better methods of instruction. It became also for teachers and learned men a distinct attraction toward Cambridge and the service of the University.

When Mr. Winsor came to Cambridge in 1877 he definitely intended to use his leisure for historical research and authorship; and his numerous and massive publications during the following twenty years testify to his wonderful capacity for steady productive labor. Long before his death he came to be recognized as the most eminent librarian in the United States, and the most important contributor of his day to American historical and cartographical research. What he did to win

respect for the profession of librarian is well expressed in the resolutions adopted by the staff of the Library at the time of his death (p. 227). In scholarship he exhibited two rare and delightful qualities — a perfect candor, and a remarkable generosity toward other scholars. Seldom has a man of strong character and definite intellectual purpose attained more completely or successfully the main objects of his faithful labors.

A list of the resignations and appointments for the year will be found in the Appendix (pp. 289–299).

The resignation of Alexander Agassiz in April, 1898, as Director of the Museum of Comparative Zoölogy was an event of grave significance, and the Corporation made it the occasion of recording Mr. Agassiz's devoted services and great gifts to the Museum. With one interval of three years (1866–69) he has been in the service of the Museum in various capacities ever since 1860. He was Agent from 1860 to 1865, and Assistant in charge of Worms, Echinoderms, and Acalephs. During part of the year 1866 he was in charge of the Museum. In 1869 he was appointed Assistant in charge of Radiates; and early in 1874 he was made a member of the Faculty of the Museum, Curator, and a member of the Board of Trustees. Since 1869 he has never received any salary. Between September 1, 1871, and September 1, 1897, Mr. Agassiz expended for the benefit of the Museum from his private means, without making any communication on the subject to the President and Fellows, over \$750,000, including his expenditures on objects now formally conveyed to the Corporation, beside contributing about \$50,000 to other University objects in gifts known at the time to the President and Fellows. An analysis of these great gifts, which were distributed over a period of twenty-six years, will be found in the Appendix (p. 300). Reference will be made later in this Report to Mr. Agassiz's final deed of gift and to the favorable conditions on which it was gladly accepted by the Corporation.

Edward William Hooper, Treasurer of the University since 1876, resigned his office on the 31st of July, 1898. He had been Steward for two years (1872–74) before he became Treasurer, so that his whole term of service covers twenty-

four years. It was Professor E. W. Gurney who first drew Mr. Hooper into the service of the University as Steward. How great a benefit Professor Gurney thus conferred on the institution may be seen in the results of Mr. Hooper's administration, results which will be described later in this Report.

On the 29th of November, 1897, Professor Charles Eliot Norton resigned his Professorship of the History of Art, the resignation to take effect on the 1st of September, 1898. On the 20th of December following the Corporation elected him Professor of the History of Art, *Emeritus*, with a retiring allowance. The University will always remain under great obligations to Professor Norton for establishing a department of instruction which at first, in 1875, was without a parallel, and which has proved to be of great interest and value to thousands of students of different ages, dispositions, and tendencies, having been to many of them a means of intellectual awakening, and to all a precious element in their mental and moral development.

Professor James Mills Peirce asked leave of absence for 1898-99, and resigned the Deanship of the Faculty of Arts and Sciences, the resignation to take effect on the 1st of September, 1898. Professor Peirce was Dean of the Graduate School from 1890 to 1895, when he was transferred to the Deanship of the Faculty of Arts and Sciences. He took a strong interest in promoting the efficiency of the Faculty under its new organization of 1890; and in the last year of his service as Dean he rearranged, and almost reconstructed, the Annual Catalogue.

The ninth statute was amended during the year in two respects,—first, on December 13th, 1897, by the insertion of the degree of Master of Science in the list of ordinary degrees; and secondly, June 28th, 1898, by adding the words, “of the degree of Doctor of Dental Medicine, and of the degree of Doctor of Veterinary Medicine,” to the last sentence but one of the statute, so as to provide that there shall be two grades of these degrees, as there are already of the degrees of Bachelor of Laws and Doctor of Medicine. The first amendment established in the University the new degree of Master of Science

intermediate between the degrees of Bachelor of Science and Doctor of Science, and therefore corresponding in position with the degree of Master of Arts which stands between the degree of Bachelor of Arts and the degree of Doctor of Philosophy. (See the report of the Dean of the Faculty of Arts and Sciences, p. 98.) The establishment of this degree will doubtless tend to develop in the Lawrence Scientific School instruction suitable for men who have already received the Bachelor's degree in that School. The second amendment of the statute will permit the Faculties of the Dental and Veterinary Schools to give a degree *cum laude*, — a distinction which has been found useful by the Faculties of Law and Medicine.

The titles of two important professorships in the Faculty of Arts and Sciences were changed in October, 1897; that of the professorship held by Dr. William James was changed from Psychology to Philosophy, and that of the professorship held by Dr. Hugo Münsterberg from Experimental Psychology to Psychology. These changes were made at the request of the gentlemen most nearly concerned.

In the Medical School two endowed professorships will date from the year under review, — the Williams Professorship of Ophthalmology, endowed by Dr. Henry Willard Williams, M.D. 1849, with a fund which amounted on July 31st, 1898, to \$32,540.57, and the Moseley Professorship of Surgery, endowed with the William Oxnard Moseley Fund, which amounted on the 31st of July, 1898, to \$52,900.33. In the application of this endowment to the principal professorship of Surgery in the Medical School the President and Fellows exercised their discretion as provided in the terms of the bequest. This endowment came from the estate of William Oxnard Moseley, A.B. 1836, of Newburyport, in memory of his son William Oxnard Moseley, A.B. 1869, M.D. 1878. No gift to a university can be more beneficial than the endowment of a professorship.

A third fund for the maintenance of an annual lecture or lectures was received by the Corporation in January, 1898, the earliest of such endowments at Harvard University being

the Dudleian Lectureship (1755), and the second the Ingersoll Lectureship on the Immortality of Man (1896). Mrs. William Belden Noble of Washington has given \$20,000 to the University to maintain an annual course of lectures in memory of her husband, and to continue the work of his life. He was a graduate of Harvard College in 1885, and of the Episcopal Theological School in Cambridge, and became a clergyman of that denomination. During the period of his education and his short professional career he was in perfect sympathy with the religious teaching of the late Phillips Brooks, and the new foundation is to be used in close association with the Phillips Brooks House and with the work there to be carried on. "The lectures may include Philosophy, Literature, Art, Poetry, the Natural Sciences, Political Economy, Sociology, Ethics, History, both Civil and Ecclesiastical, as well as Theology and the more direct interests of the religious life," the main object of the lectures being to bring to bear the influence of Jesus Christ in every department of human thought and activity. The management of these lectures is to be in the hands of a board of seven persons called Trustees, an organization for which the management of the Dudleian Lectures afforded a type. The lectures are to be printed every year, the copyright to be in the name of the lecturer. The number of lectures for any one year is to be not fewer than six or more than twelve.

From January to May 1898 an active discussion went on before the Massachusetts Legislature and the whole body of the alumni of Harvard College on the expediency of extending the right of suffrage for the Board of Overseers beyond the limits established by the invaluable act of 1865. That act provides that the voters shall be Bachelors or Masters of Arts and holders of honorary degrees. For many years the Corporation and Overseers have received from time to time from the alumni of the professional departments of the University, or from associations of such alumni, from the Faculties of the schools, and from the University Council petitions and memorials for an extension of this limited suffrage. Committees of the Board of Overseers have made successive

reports on the subject; and the Board itself has repeatedly voted on the question, but always with a negative result until the 12th of January, 1898, when the Board passed a resolution in favor of extension of the suffrage, and appointed a Committee to urge upon the Legislature the passage of an amendment to the act of 1865. No action concerning the extension of the suffrage has ever been taken by the President and Fellows, that body believing that all initiatory action on a question affecting the membership of the Board of Overseers should be taken by that Board. The President and Fellows have, therefore, always forwarded to the Board of Overseers without comment petitions and memorials on this subject addressed to the President and Fellows. In accordance with this general view the Corporation, when invited by the Overseers to join them in petitioning the Legislature for an amendment of the act of 1865, voted that "The President and Fellows think it undesirable to take part in the present application of the Board of Overseers to the General Court for an amendment of the act of 1865." The application of the Overseers was successful in the House of Representatives, but in the Senate was referred to the next General Court by a narrow majority. The cause of this failure was undoubtedly the division of opinion on the subject among the Harvard graduates who were members of the Legislature.

The record of the services of Harvard graduates and undergraduates in the army and navy during the war with Spain is still incomplete, partly because a considerable number of the men are still in the service, and partly because it has thus far been impossible to obtain full information about all the men who entered the service. It is fitting, however, that the main facts of the record to date should be mentioned in this report. Mr. William G. Brown, Deputy Keeper of the University Records, has obtained information, more or less complete, about the war service of 384 men — undergraduates, graduates, and former students for terms too short to lead to a degree. He is confident, from his correspondence during the past two months, that the total number of Harvard men who served in the war will not fall short of 400. The 384 persons whose records are

already tolerably full may be classified as follows by their academic history :—

Harvard A.B. only	148
Harvard A.B. and some other Harvard degree [A.M., 6; LL.B., 7; M.D., 20; Ph.D., 1; S.B., 2]	36
Harvard professional degree only [S.B., 3; D.B., 1; A.M., 1; LL.B., 8; M.D., 23; D.M.D., 2]	40
Harvard professional degree and a Bachelor's degree from another institution	21
Former temporary College students	87
Former temporary professional students	17
College undergraduates	47
Undergraduates of other schools	38
Total	384

The positions held by these 384 persons in the army and navy are indicated in the following table (the positions of 12 persons remaining at present unknown) :—

ARMY.

Major-Generals	3
Brigadier-Generals	3
Colonels	2
Lieutenant-Colonels	7
Majors	8
Captains	28
1st Lieutenants	28
2d Lieutenants	26
Chaplain, rank of Captain	1
Surgeons, rank of Major	10
Assistant Surgeons, rank of 1st Lieutenant	15
Acting Assistant Surgeons	5
Sergeants	13
Corporals	29
Privates	120
Sergeant, Hospital Corps	1
Privates, Hospital Corps	6
Contract Surgeons	2

NAVY.

Secretary of the Navy.	
Assistant Secretary of the Navy, until the declaration of war.	
Commander	1
Lieutenants	6
Lieutenants, junior grade	2
Ensigns	14

Surgeons, rank of Lieutenant	3
Passed Assistant Surgeons, rank of Lieutenant, junior grade	4
Assistant Surgeons, rank of Ensign	6
Paymasters, rank of Ensign	2
2d Lieutenants of Marines	2
Inspector of vessels in construction	1
Warrant and petty officers	12
Machinist, fireman, seamen, and landsman	12

The proportion of men enlisted as privates in the army is probably greater than it would have been if the militia regiments had not been accepted by the United States government as organizations; for on the spur of the moment a considerable number—both of graduates and of undergraduates—enlisted in those regiments in their respective states; moreover, forty-seven Harvard men enlisted in the 1st U. S. Volunteer Cavalry, Colonel Leonard Wood commanding, the greater part of whom remained privates at the end of the short war.

The following table shows the distribution of the Harvard men in the army among the organizations of the several states, and in those corps which did not belong to any particular state:—

Massachusetts	84	New Hampshire, Ohio, } each 1 = 4	
New York	48	South Carolina, South	
Pennsylvania	18	Dakota, }	
California	5	Volunteer staff-officers	17
Illinois	5	1st U. S. Volunteer Cavalry . . .	47
Rhode Island	5	1st U. S. Volunteer Engineers . .	9
Maryland	4	3rd U. S. Volunteer Engineers . .	1
Missouri	4	Astor Battery	1
Connecticut	3	Hospital Corps	7
Iowa	3	Regulars	18
Arizona	2	State or branch of the service not	
Indiana	2	stated	25
Alabama, Arkansas, Geor- } each 1 = 5			
gia, Montana, Nebraska, }			

The Administrative officers of the University had, of course, no concern with the enlistment of any of these Harvard men, except those who were undergraduates in some department when the war broke out. Undergraduates who wished to enlist were advised to make sure that they were physically fit

for the service, and to consider carefully their duty to their families; they were also advised not to enlist in groups as students, but to scatter themselves through many organizations. The effort of the President and the Deans was to prevent hasty and inconsiderate enlistment, but not to discourage the enlistment of able-bodied young men of legal age whose family circumstances warranted them in offering their lives to the country. So long as there are wars, it will be expedient, especially in democracies, that the best educated young men bear their full share in war's hardships and dangers. The highly educated class must show itself as brave, tough, and disinterested as any other and as faithful to ideals. If its education has been right, it will always show itself superior in these respects to every other class.

There has long been a popular impression that high scholars in College are almost always men of poor physique, distinctly inferior in that respect to the average College student. The following comparisons go far to discredit this vague opinion:—

Grades according to the Gymnasium strength tests.	Grades attained according to best tests (out of several) by all College men examined in 1896-97 and 1897-98.		Grades attained according to best tests by Scholarship men on work done in 1896- 97 and 1897-98.	
	<i>Number.</i>	<i>Per cent.</i>	<i>Number.</i>	<i>Per cent.</i>
<i>A</i>	61	8	6	2+
<i>B</i>	287	18	36	10—
<i>C</i>	320	17	50	15
<i>D</i>	488	26	89	27—
<i>E</i>	419	23	99	29
<i>F</i>	221	12	45	13+
<i>G</i>	90	5—	9	3—
	14	1—	3	1
Total . .	1860		337	

The grades need to be interpreted by the following statements: The University crew and foot-ball team must attain grade *B*; class crews and foot-ball teams grade *C*; and University and class ball-nines and lacrosse teams grade *D*. Since grade *D*, or any higher, means a satisfactory degree of physical vigor, it appears that 82 per cent. of all the College men examined during two years, and 83 per cent. of the scholarship winners on the same two years, had a quite sufficient degree of strength and general vigor. Moreover, there is no larger per-

centage of weaklings among the scholarship holders than in the whole body of students examined. These statistics are to be accepted only with some reserve. Not every student in College was examined in 1896-97 and 1897-98, and not every scholarship winner on the work of those years; yet the proportion examined is large enough to warrant a just inference, if the result be not supposed to be exact. Among the scholarship holders were 67 holders of scholarships without stipend; but the standing of these men as regards strength was very much like that of other scholarship holders. It follows from these facts that at least 82 per cent. of all Harvard College students and young graduates are physically fit for the service of the country in time of war, just as they are fit for all sorts of strenuous work in business and the professions in time of peace.

It is an interesting inquiry how far the claim that the highly competitive athletic sports develop qualities which are exercised and tested in the work of the soldier or sailor is justified by the experience of the University in connection with the war with Spain. From the five classes, 1898, 1899, 1900, 1901, and 1902, fourteen of the ninety-seven young men who enlisted are recognizable as athletes, if we include among athletes men who rowed on a class crew or a Weld crew. In the five classes from 1897 to 1893, there were ten men recognizable as athletes out of eighty-six men who enlisted. In the older classes the proportion of athletes was decidedly small. One excellent authority made the number of athletes on the whole list of 384 names to be 34; another, who included managers of teams, members of the shooting-club, wrestlers, and polo players, counted 42 recognizable athletes in the entire list of Harvard volunteers. These figures do not indicate that the men who take part in the highly competitive athletic sports are on that account more inclined to enlist as soldiers or sailors than the ordinary student who is physically sound enough to pass the medical examination for the army or navy. It is probable that a taste for riding or shooting would do more to take a man into the army in time of war than a taste for foot-ball or base-ball; and it is certain that skill in the management of boats or of machinery would tend much more to take a college

man into the navy than any acquired skill in the highly competitive games. It has been supposed that foot-ball was especially adapted to training soldiers; but the fact seems to be that nothing can be more unlike actual fighting than the bodily collisions which take place between foot-ball players. In modern warfare no one seems to see his adversary, and the constant thought of the men in line of battle is to conceal or cover themselves and their weapons while advancing or waiting.

For comparison with the proportional number of recognized athletes who went to the Spanish war, the following table is of interest, since it shows the proportional number of persons in the four College classes who took part in athletic sports during the year under review. A table of this sort is compiled every year for the information of the Committee on the Regulation of Athletic Sports.

THE NUMBER OF STUDENTS WHO TOOK IN 1897-98 THE PHYSICAL EXAMINATIONS PRESCRIBED FOR ALL ENGAGED IN PUBLIC ATHLETIC CONTESTS.

	Class of '98.	Class of '99.	Class of '00.	Class of '01.	Spec.	Grad.	Law.	Med.	Total.
Football	25	19	28	39	..	..	6	1	118
Baseball	18	19	16	11	..	1	2	1	65
Rowing	11	11	11	7	..	..	..	1	42
Track Athletics	18	29	34	36	2	..	7	3	129
Lacrosse	4	2	8	1	..	..	8	1	14
Ice Polo . . . . .	..	2	1	1	..	..	1	1	6
Football & Baseball	2	7	3	5	..	..	..	1	18
Football & Rowing	2	2	4	4	..	..	..	..	12
Football & Track Athletics	4	1	5	4	..	..	..	..	14
Football & Polo . . . . .	..	1	1	..	..	..	..	..	2
Baseball & Track Athletics . . . . .	..	1	..	2	..	..	..	..	3
Baseball & Polo	1	..	..	..	..	..	..	..	1
Baseball & Rowing . . . . .	..	1	..	..	..	..	..	..	1
Rowing & Track Athletics . . . . .	..	..	..	1	..	..	..	..	1
Polo & Track Athletics . . . . .	..	1	..	..	..	..	..	..	1
F. B., B. B., & Track Athletics . . . . .	..	..	1	1	..	..	..	..	2
Football, Baseball, & Polo . . . . .	..	..	1	..	..	..	..	..	1
Football, Tr. Ath. & Rowing	1	..	..	..	..	..	..	..	1
Track Athletics Polo & Lacrosse . . . . .	..	..	..	1	..	..	..	..	1
	81	97	108	115	2	1	19	9	482
Whole number in the class	342	387	450	471					

WHOLE NUMBER ENGAGED IN VARIOUS SPORTS ACCORDING TO THE GYMNA- SIUM RECORD.		NUMBER IN EACH SPORT WHO EN- GAGED IN OTHER SPORTS.	
Football	164	Football	% 46 28
Baseball	91	Baseball	26 29
Rowing	57	Rowing	15 26
Track Athletics	151	Track Athletics	22 15
Lacrosse	15	Lacrosse	1 7
Ice Polo	12	Ice Polo	6 50

The above table does not give a complete record of the students who took vigorous part in out-of-doors sports. Thus, only 151 men were examined for track athletics; but 277 men were under the direction of Instructor Lathrop. Again, the Weld Boat Club contained 413 members, and 153 students presented themselves as candidates for the Freshmen crew. Lawn tennis does not appear at all on the records.

Some progress was made during the year 1897-98 in the intelligent management of the competitive athletic sports. The evils of excessive training were still manifest, but they were lessened. In several sports paid professional trainers were again employed, but with the sanction of the Committee on the Regulation of Athletic Sports. These men are of two kinds: they sometimes are experts in the particular sports for which they train aspirants; but sometimes, knowing little about the sports, they still make themselves very useful, if they have tact and good sense, as personal attendants or nurses.

The reasons for treating the Freshman crew and Freshman ball-teams differently from the same organizations in the older classes seem to be losing their force in the minds of some of the graduates and undergraduates who take a strong interest in athletic sports; and it may therefore be hoped that the Freshman class will soon be treated in regard to athletics like the other classes. The early organization of the Freshman crew and Freshman foot-ball team, made before the men have got acquainted with each other, and while the best leaders in these sports are still unproved, is an injurious influence which is often a lasting one. Intercollegiate foot-ball for young men who have just joined the University causes a grave interference with their studies at the worst possible time, namely, at the very beginning of their University career. The injury which

College and Scientific School members of the Freshman foot-ball teams suffer is plainly to be seen in the following table, although the November grades are never conclusive, and the membership of the team changes so much during the season that it is hard to determine what men should be included in the table. For this reason, and also because a Freshman can only very rarely be of proved capacity for the severest strains, Freshmen should be excluded from University crews and ball-teams.

SUMMARY OF THE RECORDS OF COLLEGE AND SCIENTIFIC SCHOOL FRESHMEN ON THE FRESHMAN FOOT-BALL TEAMS FOR THE YEARS 1897 AND 1898.

Year.	Number of Men.		November Grades.					Number of Absences in about eight weeks.	
	College.	Scientific School.	A	B	C	D	E	Excused.	Other.
1898	14	7	8	5	28	39	20	111	127
1897	15	7	0	17	44	38	13	92	131

In all the sports it is very desirable to develop some agreeable, local competition, so that a large number of crews and teams may always be in practice. Thus, two or three more clubs for rowing, like the Weld Club with its 413 members, are needed, in order to put a large number of crews on the river and develop a wholesome and interesting competition at home.

The large income derived from the principal foot-ball games has a tendency to encourage extravagance in all the sports; but a considerable portion of the gate-money has been in recent years devoted to the permanent improvement of fields and buildings.

The total number of students who engage in vigorous out-of-door sports continues to be very large, and the good physical influence of these sports, in general, is indubitable, although it is still a matter of doubt whether the intensified games which mainly interest the public have a good physical effect on the players. Great pains are taken to prevent unfit men from engaging in the violent sports; but in spite of all these efforts men physically unfit for such strains do get into University crews and ball-teams. Whether the fit men who take part in the hotly contested races and games are thereby made physically fitter to bear the subsequent strains of business or

professional life is still an open question. Cases of demonstrated injury are not infrequent; but cases of proved profit or advantage are not easily to be exhibited. The policy of the University is to resist steadily the moral and physical evils which are easily developed in connection with intercollegiate sports; and to take all possible care that individual students be not injured through their own ignorance or lack of judgment. It is always to be put down to the credit of vigorous out-of-door sports that they tend to deliver young men from sloth, sensuality, and luxury. The principal benefit of athletics accrues to the hundreds of students who play wholesome games and take vigorous exercise without ever being heard of in intercollegiate contests.

One of the most interesting questions concerning the tendencies of organized American education is the question relating to the future of the A.B. degree. Fifty years ago the American colleges and universities had no other preliminary or fundamental degree. They now confer, not only the degree of Bachelor of Arts, but contemporaneous degrees in considerable variety, bearing such titles as Bachelor of Letters, Bachelor of Science, and Bachelor of Philosophy, and various degrees in engineering. These new degrees commonly represent a larger attainment in science and mathematics than the degree of Bachelor of Arts, and a smaller attainment in languages, particularly in the dead languages; and, as a rule, the examinations which admit to the courses which conduct to these new degrees are of a lower grade than the examinations which admit to the course for the degree of Bachelor of Arts. On the other hand, in instances not a few, the course of study which ends in one of these new degrees is more severe than the parallel course of study which leads to the degree of Bachelor of Arts. The use of the new degrees, although practically unknown before 1848, has now become in all the state universities decidedly larger than the use of the traditional degree of Bachelor of Arts; while in the older endowed institutions, the new degrees are rapidly gaining ground on the old degree. In the following table the facts of this important movement can be conveniently studied. All special students are omitted from this table, because they are not candidates for any degree.

Of the nine universities represented in the table, three are state universities, — namely, Michigan, Wisconsin, and California. Five are endowed universities over which the state has little direct control, — namely, Yale, Pennsylvania, Columbia, Princeton, and Brown; and Cornell, the remaining university, is an endowed institution which is largely subsidized both by the state and by the United States. In the most conservative institutions, the degree of A.B. is losing ground in comparison with the new degrees. Thus, in Yale University the number of A.B.s conferred has not doubled in fifteen years, whereas the number of Ph.B.s conferred has much more than doubled. At Princeton University, the number of students studying for the degree of A.B. is half as large again as it was fifteen years ago; but the number of students studying for the modern degrees is nearly four times as great as it was fifteen years ago. At Columbia University, the number of students studying for the new degrees has generally been greater than the number of students studying for the old degree; but the course for the A.B. has apparently led students more regularly to the degree than the courses for the other degrees. In order to understand the situation in New England, it is necessary to take account of the rise of the Massachusetts Institute of Technology which confers every year a large number of S.B. degrees. By adding together the candidates for the S.B. degree of the Massachusetts Institute of Technology and the candidates for the S.B. in Harvard University, and comparing this total with the number of candidates for the A.B. at Harvard University, one gets a clear impression of the immense educational change which has taken place in Eastern Massachusetts since the Institute of Technology was founded in 1865. This invasion of the old province of the Bachelor of Arts degree is going on in all the advanced institutions of education at a rapid rate, and is doubtless based on changed social and industrial conditions which are quite beyond the control of those institutions. It is therefore a pressing question how to secure and defend a legitimate province for the degree of Bachelor of Arts. Thus far, Harvard has maintained the relative numerical importance of this traditional degree better than any other American institution; and there can be no doubt that it is the Elective System in Harvard College

	1883-84	1884-85	1885-86	1886-87	1887-88	1888-89	1889-90	1890-91	1891-92	1892-93	1893-94	1894-95	1895-96	1896-97	1897-98
UNIVERSITY OF MICHIGAN.	Students studying for the degree of A.B.														
	Do. L.B., S.B., or Ph.B.														
	A.B. degrees conferred														
	L.B., S.B., and Ph.B. degrees conferred														
YALE UNIVERSITY.	Students studying for the degree of A.B.														
	Students studying for the degree of Ph.B.														
	A.B. degrees conferred														
	Ph.B. degrees conferred														
CORNELL UNIVERSITY.	Students studying for the degree of A.B.														
	Do. Ph.B., L.B., S.B., C.E., or M.E.														
	A.B. degrees conferred														
	Ph.B., L.B., S.B., C.E., and M.E. degrees conferred														
UNIVERSITY OF PENNSYLVANIA.	Students studying for the degree of A.B.														
	Do. Ph.B., S.B., or Mus. Bac.														
	A.B. degrees conferred														
	Ph.B., S.B., and Mus. Bac. degrees conferred														
COLUMBIA UNIVERSITY.	Students studying for the degree of A.B. in the School of Arts														
	Students studying for the degree of M.E., C.E., Ph.B., S.B., or E.E. in the School of Mines														
	A.B. degrees conferred on students in various departments														
	M.E., C.E., Ph.B., S.B., and E.E. degrees conferred on students in various departments														

PRINCETON UNIVERSITY.	Students studying for the degree of A.B.	870	861	1842	353	398	423	455	504	559	600	595	558	544	522	538
	Do. E.E., S.B., or C.E.	80	76	76	80	76	92	110	155	228	281	311	381	308	307	306
	A.B. degrees conferred	97	94	95	73	91	79	108	118	126	118	150	149	162	126	120
UNIVERSITY OF WISCONSIN.	E.E., S.B., and C.E. degrees conferred	11	9	8	12	8	17	24	10	22	20	32	55	47	65	69
	Students studying for the degree of A.B.	40	31	28	40	45	56	54	46	49	48	43	42	61	75	76
	Do. L.B., S.B., or Ph.B.	170	158	169	220	266	316	354	390	439	488	539	651	798	850	800
UNIVERSITY OF CALIFORNIA.	A.B. degrees conferred	16	8	10	9	6	12	12	11	8	12	12	12	12	13	13
	L.B., S.B., and Ph.B. degrees conferred	46	43	37	47	33	60	70	60	67	117	137	141	140	146	160
	Students studying for the degree of A.B.	44	44	39	48	48	45	46	50	62	65	80	102	108	138	175
BROWN UNIVERSITY.	Do. L.B., S.B., or Ph.B.	116	119	137	168	192	232	249	269	319	373	475	699	848	907	958
	A.B. degrees conferred	2	11	5	9	13	10	7	11	11	10	18	22	18	21	30
	L.B., S.B., and Ph.B. degrees conferred	19	21	13	33	23	23	39	43	48	63	77	87	115	137	161
The degrees towards which students are studying are not specified.																
MASSACHUSETTS INSTITUTE OF TECHNOLOGY.	A.B. degrees conferred	46	47	58	38	33	51	45	49	47	52	63	65	70	88	70
	Ph.B., S.B., C.E., and M.E. degrees conferred	6	11	3	5	5	6	9	15	11	9	20	38	40	52	56
	(No course leading to A.B.)															
HARVARD UNIVERSITY.	Students studying for the degree of S.B.	292	368	415	440	519	589	649	656	704	771	821	830	847	860	857
	Number of S.B. degrees conferred	35	27	59	58	77	75	102	102	132	129	137	148	188	179	197
	Students studying for the degree of A.B.	905	930	958	981	997	1035	1127	1198	1287	1449	1494	1499	1611	1594	1650
	Students studying for the degree of S.B.	13	15	10	8	6	6	27	35	48	100	142	204	236	292	319
	Number of A.B. degrees conferred	197	182	222	235	235	212	232	284	293	335	350	360	392	380	391
	Number of S.B. degrees conferred	1	0	2	3	1	1	7	2	7	9	19	28	29	26	29

* From 1892-94, students in the Courses in Arts and Science in the University of Pennsylvania who do not take Latin and Greek through the Freshman and Sophomore years receive the degree of Bachelor of Science.

which has secured this result. It has long been the belief of the President that to maintain the Harvard degree of A.B. in full vigor, it is desirable to broaden the range of well-taught subjects which will admit to Harvard College.

The following table, covering nine years, shows the different modes in which young men accomplish, or nearly accomplish, in three years the work required for the degree of Bachelor of

	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Total number receiving A.B.	282	283	293	332	348	364	396	383	404
1. Graduated in three years	14	18	18	9	18	17	15	23	17
Of these were credited at admission, 2 or more courses each	2	4	3	3	4	9	5	8	8
Less than 2 courses each	3	4	5	1	3	3	4	4	2
2. Had leave of absence for Senior Year	2	2	7	15	11	22	26	31	31
Credited with 18.2 courses . . . . .	..	..	1	0	8	11	11	13	10
" " 17.7 " . . . . .	..	1	..	2	3	3	3	4	4
" " 17.2 " . . . . .	..	1	1	1	..	4	1	6	4
" " 16.7 " . . . . .	..	..	1	2	..	5	0	6	7
" " 16.2 "	2	..	4	4	..	..	2	2	..
Of these were credited at admission, 2 or more courses each . . . . .	..	..	..	3	..	..	1	1	1
Less than 2 courses each . . . . .	..	1	..	..	2	6	6	6	4
3. Registered as Seniors, but credited with 16 courses or more	9	13	30	24	48	49	55	58	54
Credited with 18.2 courses	1	4	3	6	10	8	5	1	12
" " 17.7 " . . . . .	..	1	1	1	..	1	2	4	5
" " 17.2 "	3	1	7	5	9	11	10	10	12
" " 16.7 "	3	..	4	4	8	6	14	11	9
" " 16.2 "	2	7	15	8	11	20	14	32	16
Of these were credited at admission, 2 or more courses each . . . . .	..	2	..	1	..	..	..	2	4
Less than 2 courses each	1	3	1	1	1	2	5	12	11
Number credited in three years with 16 or more courses	25	33	55	48	77	88	96	112	102
Of these with 18 or more courses	15	22	22	21	36	36	28	37	45

Arts. These three-year men are divided in the table into three groups: the first group containing those who actually graduated in three years; the second, those who obtained leave of absence for the Senior year on the ground that they had either completed, or nearly completed, the work for the A.B.; the third, those who registered as Seniors to spend a fourth year in the College, although they were already credited with sixteen courses or more, out of the eighteen courses required for graduation. The table shows the precise number of courses with which each member of each group was credited, and also how many of these course-credits had been obtained at the admission examination. The last two lines in the table show that the number of persons who complete the work for the degree in three years is distinctly increasing,—indeed, that it has doubled within six years; and also that the number of persons who come within two courses or less of completing the work for the degree of A.B. is increasing. To anyone examining these figures for the first time, the query will naturally occur,—why is the third group in this table the largest? why should men who have completed, or very nearly completed, the whole of the work for the A.B. register again as Seniors? For this course of action there are three intelligible motives. First, a young man desires not to graduate a year in advance of most of the friends and contemporaries with whom he entered College. Secondly, a student who needs aid may reasonably suppose that he has a better chance of a scholarship or other money aid, if he registers as a Senior, than he would have if he registered in the Graduate School. Thirdly, a young man who thus registers as a Senior—having nearly finished his work for the A.B.—may take courses acceptable for the A.M., and on completing these satisfactorily during his Senior year may receive, first his A.B. four years from the time he entered College, and then—without further residence—his A.M. five years from the time he entered College. This fifth year he may spend in a professional school, or in business, or in foreign travel or study. One indisputable inference is to be drawn from this table,—namely, that from a third to two-fifths of each College class have no need of more than three years to complete the eighteen courses required for the degree.

Since it is possible to accomplish creditably the regular four years' College work in three years, it must also be possible to do creditably in four years much more than the prescribed amount of work. Accordingly it is common among good students to do much extra work during a residence of four years. Thus, in the class of 1897 there were, among the 143 students who received degrees with distinction, 106 who completed during their residence as undergraduates in Harvard College more than the required number of courses exclusive of extra admission subjects, and in the class of 1898 there were 86 such students. The detailed facts will be found in the Appendix (p. 301). It might be supposed that the men who attempt much extra work do all their work, or much of it, badly; but such is by no means the case. It appears from tables printed in the Appendix (pp. 302-306) that the men in the class of 1897, and the class of 1898, who did most extra work during their residence as undergraduates, did all their work in an admirable manner. These facts are corroborated when the statistics of the extra work done by scholarship holders of the first and second groups in the years 1897-98, and 1898-99 are examined. The facts are presented in tabular form on pages 307, 308 of the Appendix. It appears in these tables that almost all the scholarship holders of the first and second groups do extra work, and that a large proportion of them do a great deal of extra work. Ambitious students, therefore, can either graduate with distinction in three years, or remaining four years in College they can do much work beyond the prescribed amount.

The most important piece of work accomplished by the Faculty of Arts and Sciences during the year under review, was the revision of the requirements for admission to Harvard College and the Lawrence Scientific School. At the end of the year 1896-97, new definitions of the requirements in the several studies in which candidates may present themselves for examination had been adopted by the Faculty; and the new series was published in the summer of 1897. The Faculty had also agreed upon a preliminary statement of the terms of admission to the Lawrence Scientific School, which involved a gradual raising of the admission requirements for that School

to substantial equality with those of the College, although the range of acceptable subjects was larger than in the College. During the first half of the year 1897-98, the Faculty gave a great deal of time to the remaining problem, — namely, the formulation of the terms of admission to Harvard College. This involved settling which of the studies should be prescribed and which should be elective, what restrictions, if any, should be placed on the choice among the elective studies, what relative weight should be assigned to the several studies, and what should be the total amount of the requirements. On the 4th of January, 1898, the Faculty adopted, by a vote of 53 to 12, a scheme in which all these points were determined in a comprehensive measure which was, at least, the result of long discussion and deliberate reflection.

The Dean of the Faculty gives in his report (p. 99) a full and impartial statement of the essential points of difference between the present requirements for admission and those proposed in the Faculty's plan. Although the Faculty declared that it did not intend to increase the total amount of work required in preparation for admission, almost every department represented among the subjects required for admission feels that it has gained something under the new definitions, or under the new method of utilizing for admission the various permitted subjects. Thus, Mathematics gains a better definition of Geometry. Physics escapes from a book alternative in Physics and Astronomy. Latin gains by shifting to a higher level the line between Elementary Latin and Advanced Latin, thus forcing the candidates who do not present Advanced Latin to present more Latin than they did before. All the languages, both Ancient and Modern, gain, in the opinion of their representatives, by the introduction of a more thorough method of testing the candidate's mastery of forms and idioms. In Elementary History the new definition covers much more ground than the old, and a more thorough method of examination is also introduced. In Science four new subjects — namely, Physiography, Astronomy, Meteorology and Anatomy, Physiology and Hygiene — are added to the list of acceptable subjects. How, then, does the Faculty expect that its intention of not raising the total amount of work required for admission can be fulfilled? Its chief reliance is on the fact that the range and freedom of

election open to candidates are materially enlarged in the proposed plan.

The Corporation and Board of Overseers sanctioned the new definitions of requirements, and the proposed gradual raising of the standard of admission to the Lawrence Scientific School; but, by a vote adopted on the fifteenth of June, the Board of Overseers returned to the Faculty its scheme for admission to Harvard College "for further consideration and report, to the end that the preparation in Algebra and History now required of candidates for admission may not be reduced." In the Faculty's scheme both these subjects had been made elective. During the current academic year the Faculty has therefore resumed the discussion of its scheme of January 4th, 1898.

In an excellent table on page 108 of the report of the Dean of Harvard College, and in the comments which follow it, the heavy handicap put upon all candidates for admission to the College who desire to omit Greek is clearly brought out. It there appears that Plan (c) requires nominally eighteen hours of examination, but really twenty and a half; Plan (d) nineteen hours of examination, but really twenty-one—against sixteen hours in Plan (a), strictly eighteen and a half; and seventeen hours in Plan (b), strictly nineteen. Under these conditions it is remarkable that Plan (c) is utilized as much as it is. Naturally Plan (d) has never been much used, since it requires the presentation of at least five advanced studies. It is hoped that the new scheme of requirements for admission, whatever its final form may be, will bring relief from some of these anomalies.

Stimulated by the Board of Overseers, the Faculty is endeavoring gradually to get rid of the prescribed English courses in Harvard College. During the year under review it passed three votes on this subject—the first providing that a candidate for admission who has passed the examination in Elementary English with a grade of *A* or *B* may take a second examination (two hours) which, if passed with a grade of *A* or *B*, shall exempt him from the prescribed Freshman English; the second providing that a student who has obtained grade *A* or *B* in English *A* shall be exempted from the prescription of pre-

scribed Sophomore English; and the third providing that students in prescribed Junior English who have obtained grade *A* or *B* in their work up to the third forensic, may be excused from writing the third forensic. The object of these votes is to relieve from prescribed English all those who do not need it.

In 1897-98, 35 students won a position in the First Group of holders of scholarships, against 23 in 1896-97; and of these 35 men, 16 held John Harvard Scholarships—that is, scholarships without stipend. The list of these scholarship holders (p. 117) is commended to the attention of the Board of Overseers. The principle of awarding scholarships without stipend to those whose rank equals that of the men who receive scholarships with stipend, was extended during the year to the Second Group of holders of scholarships; and the award made at the opening of the current year demonstrated the wisdom of this extension.

In consequence of the great increase in the number of students in Harvard College of late years, some College graduates have feared that the proportion of teachers to students had not been maintained, and that the average age of the College teachers had been reduced by the employment of a large number of young instructors. The following statistics should set at rest both of these apprehensions.

	1869-70.	1896-97.	Ratio.
Number of students under Faculty of Arts and Sciences	619	2417	3.9 fold.
Number of college undergraduate students . .	563	1754	3.1 “
“ members of the Faculty	22	96	4.4 “
“ of whole courses (and half courses reduced to whole courses) attended by college undergraduates	87	209	5.3 “

Average number of years out of college of the members of the Faculty : —

In the year 1869-70	20.8
In the year 1896-97	20.1

Average number of years out of college of the teacher per student-hour of instruction in the years mentioned, or in other words of the teachers giving the instruction received by the several classes of persons named, the unit of the computation

being one hour a week of instruction throughout the year for one student : —

	1869-70.	1896-97.
To College Freshmen	8.6	11.1
“ “ Sophomores	10.4	16.9
“ “ Juniors	15.8	18.4
“ “ Seniors	27.9	19.7
“ all undergraduates	15.6	16.8
“ graduate students		19.6
“ all students		16.6

Average number of years out of college of the teacher per whole course (and half courses reduced to whole courses) : —

In the year 1896-97 17.0

It appears first, that the number of members of the Faculty has increased faster than the number of undergraduates, and secondly, that the average number of years out of college of the members of the Faculty has decreased only seven-tenths of a year between 1869-70 and 1896-97. It also appears that the teachers of Freshmen, Sophomores and Juniors now are men of more maturity than they were in 1869-70, while the teachers of Seniors now are not so long out of college as they were thirty years ago. The fact is that in 1869-70 the teachers of Freshmen were almost all young men, and the teachers of Seniors were almost all elderly men. Finally, the average teacher of a College course is now a man seventeen years out of college, and therefore probably nearly forty years old.

The report of the Dean of the Lawrence Scientific School (p. 120) shows that the School continues to improve its relations to secondary schools, to grow in size, and to procure better and better the regular advancement and graduation of its members. Between 1887 and 1891 the number of Special Students in the School was more than half the total number; but the relative number of Special Students has declined so rapidly since 1891 that it is now less than one sixth of the whole number of the School; and most of the remaining Special Students are desirable members of the School, because they are pursuing selected studies in preparation for special employments.

It is noticeable that some of the very best secondary schools in the country are now regularly sending boys to the Lawrence Scientific School. This was not the case until within recent years. There are thirty-three excellent secondary schools—endowed, public, and private—which are sending pupils regularly to the Scientific School, all but three of them being also regular feeders of Harvard College. These schools are chiefly New England schools of high reputation, but one of the best schools in New York City, and one of the best in Chicago are on the list. The gradual raising of the standard of admission to the School, which has already been decided on, will in all probability confirm and enlarge this relation of the School to good secondary schools, public, endowed, and private.

The status of the Scientific student in Cambridge has completely changed within ten years; he is no longer an outsider, but a comrade and equal of the College student in every respect. He has the same rights in the same buildings and associations, is eligible to the same clubs, teams, and crews, shares with the candidates for the A.B. the delights and charges of Class Day, and graduates on the same day after the same period of residence. In proportion to its numbers, the Scientific School furnishes more members of the principal athletic teams than the College does; and last spring more undergraduates, in proportion to its number of students, enlisted in the army or navy from the Scientific School than from the College.

The Department of Architecture in the Scientific School has now been under way for four years; it has filled out its course of instruction, has taught 105 students, and graduated 11. It already appears that its scheme of studies is very unlike the scheme of every other school of architecture in the country, and strikingly different from that of the neighboring school at the Massachusetts Institute of Technology. These differences were not planned, but have resulted naturally from the university environment of the new department, and from the quality of the students who have presented themselves for instruction. The following table, prepared by Professor Warren, exhibits clearly the well-defined differences in the programmes of seven schools.

**PERCENTAGE OF TIME DEVOTED TO CERTAIN GROUPS OF STUDIES IN
THE COURSES ON ARCHITECTURE AT SEVEN INSTITUTIONS.**

Institution.	Date of opening of course.	Year of course.	Mathematics and Construction.	Architectural History.	Architectural Drawing and Design.	Freehand Drawing.	General Studies.
Massachusetts Institute of Technology	1869	I	36.42†	0	26.63	5.62	31.33
		II	23.22	7	20.90	4.65	44.22
		III	28.72	11.22	20.00	4.36	31.78
		IV	8.90	8.04	47.96	14.95	20.15
Cornell University	1870	I	17	0	50	17	16
		II	0	17	50	17	16
		III	25	10	50	0	15
		IV	15	0	50	0	35
Illinois "	1878	I	42	0	8	25	25
		II	42†	0	8†	8	42
		III	10	30	50	0	10
		IV	33	0	56	11	0
Columbia "	1881	I	10	10	35	25	12
		II	10	10	48	20	12
		III	30	9	50	10	5
		IV	*	0	75*	10	6
Syracuse "	1888	I	17	9	36	17	21
		II	17	9	45	17	12
		III	17	5	36	17	25
		IV	15	4	45	18	18
Pennsylvania "	1890	I	18	11	51		40
		II	22	10	23	8	0
		III	20	12	50	10	0
		IV	4	4	70	10	0
Harvard "	1894	I	22	13	40	10	15
		II	20	15	40	15	10
		III	10	15	50	15	10
		IV	0	10	70	10	10

* At Columbia students have the option in the fourth year of specializing in construction or design.

† At Illinois students have the choice between the regular course in architecture and a four-year course in architectural engineering in which there is more mathematics and construction and less drawing and design.

‡ The first year at the Massachusetts Institute of Technology is alike for all students of whatever profession.

For the first four years of its existence the Department of Architecture received generous support from Mr. James A. Garland of New York, who contributed \$3,000 a year for four

years towards the cost of the Department. The Department having now been set firmly on its feet, and Mr. Garland's purpose having thus been accomplished, the Corporation have assumed all the annual charges for salaries and expenses.

The School has gained a new building for the accommodation of its Department of Mining and Metallurgy, — namely, the building formerly known as the Carey Building on Jarvis Field, hereafter to be known as the Rotch Laboratory, in commemoration of the gifts made to the Scientific School by Mrs. Benjamin Smith Rotch and her children.

The Department of Engineering has developed rapidly during the last few years, as is shown in the following table : —

Year.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
Number of enrolments in full courses	278	338	574	623	649	763	958
Number of candidates for degrees in Engineering	76	121	184	147	140	161	156

The better accommodation of the numerous students in Engineering is a pressing problem (p. 122).

An important change was made during the year in the programme of the four years' course in General Science — a change which permits students following this course to choose their subjects, after the first year, with the approval of the Division or Department in which they are severally registered. Heretofore all the various courses in the Scientific School which led to a degree have been in the main prescribed, as is necessary whenever a degree having a professional significance is to be given. The change now made in the course in General Science points to the use of that course for purposes of general culture.

The attendance at the summer courses which are given in Cambridge for six weeks beginning July 5th has increased rather rapidly of late years, as appears in the following table :—

Year.	No.	Year.	No.
1889	220	1894	505
1890	279	1895	575
1891	357	1896	617
1892	500	1897	718
1893*	378	1898	759

* Columbian Exposition.

The persons who attend these courses are chiefly teachers in schools and colleges. As a rule they are eager for instruction and prepared to do a large amount of work. They interest and stimulate their instructors, and make surprising progress during their six weeks' residence at the University. The subjects taught in the Summer School were at the beginning (1874) Chemistry and Botany to which Geology was added in 1875; and they were all scientific subjects down to 1891, except that French and German were added in 1888. Since 1890 many new subjects have been added to the list—among them English, Latin, Greek, history, elementary mathematics, psychology, and English literature. In twenty-five years no case of injury to the health of either student or instructor in the Summer School has ever been reported, in spite of occasional hot weather and the temptations to excessive labor which beset the students.

It is an indication of the quality of the students in the Graduate School that no case of discipline has come before the Administrative Board of that School within the last three years (report of the Dean of the Graduate School, p. 125).

The three subjects in the Graduate School which lead numerically are Modern Languages (including English), History and Political Science, and Philosophy;—Classics and Sanskrit taken together making a good fourth. Mathematics, Physics, Chemistry, and Natural History hold subordinate places, but may fairly be classed together; while Music and the Fine Arts, including Architecture, are feebly represented—probably because these departments are unable to offer much advanced instruction.

The proportion of short-residence men in the Graduate School continues to be large. The resort to the School from Canadian universities or colleges is increasing. The quality

of the School as a place for training teachers is clearly brought out in the Dean's report by tracing the present occupations of the 26 Doctors of Philosophy created in June last. Of these men 21 are now teachers—either in colleges or universities (18), or in secondary schools (3). Three others of the 26 are continuing their studies, two of them being holders of Harvard travelling Fellowships. The permanent occupation of two only is as yet uncertain. The degree of Master of Arts is taken by many persons who continue their study; but it is also used as a final degree for men who mean to adopt teaching as their profession. Thus, of the 103 men who received the degree of Master of Arts in June 1898, 32 are already teaching, 10 in colleges and 22 in secondary schools. Some of these persons may, however, rejoin the School later for the purpose of obtaining the degree of Doctor of Philosophy.

The Dean presents a table (p. 139), which shows the age of the Masters of Arts, Masters of Science, and Doctors of Philosophy created in 1898. The figures are formidable. 49 men out of 121 were twenty-eight years of age and over; and more than half the entire number were twenty-seven years of age or over. For such men two-fifths of their seventy years are over before they are able to support themselves.

The competition for the Fellowships and Scholarships in the gift of the Graduate School continues to be amply broad. A little over a quarter of the applicants get appointments of some sort. The Dean presents a very interesting table (p. 148), which indicates the number of degrees conferred in each year since the advanced degrees in arts and sciences were conferred at all, and the total number of each degree conferred; and he accompanies this table with remarks and statistics concerning the distribution by departments, or subjects, of the Doctors of Philosophy and Science, and concerning the subsequent occupation of the persons who have received the Doctor's or Master's degree.

The descriptive catalogue of the Graduate School for the first twenty-five years of its existence (1873-98) was prepared under the direction of the Dean during the year 1897-98, and has since been issued. This catalogue demonstrates that, though the Graduate School has been primarily a place of training for the work of teaching, it has also been used to a

large extent by men who have subsequently entered other professions. Thus, out of 212 Doctors of Philosophy and Doctors of Science, 171 are or have been teachers; but 6 are clergymen; 6 are lawyers; and 16 are men of science who are not also teachers. Again, among 705 A.M.s who are not also Ph.D.s, 316 are teachers: but 72 are lawyers; 61 ministers; 13 physicians; 12 journalists or authors; 7 librarians; 19 scientists; and 28 in business. All the professional Schools of the University, except the Veterinary School, have now issued descriptive catalogues of their graduates. The Law School set the example; the Medical School came next with a catalogue of the members of the Association of Harvard Medical Alumni; and during the year 1897-98 the Scientific School, the Graduate School, the Divinity School, and the Dental School all issued similar catalogues. A descriptive catalogue of the Veterinary School is in preparation. It is unquestionable that catalogues of this sort increase and maintain the interest of the alumni in their respective schools, and also furnish very useful statistical information for those who study the scholarly, political, and social results of improved university organization.

The report of the Dean of the Divinity School (p. 152) brings out strongly the changes which have gradually taken place in the function of the School and in the process of preparing for the ministry. From 1638 to 1814 Harvard College educated a larger proportion of ministers among its graduates than it has ever educated since, but educated them without maintaining any professional school of theology. Candidates for the ministry, after receiving the degree of Bachelor of Arts, remained at the University a few years as resident graduates, or studied with a settled minister. Beginning with 1814, however, the University began to train ministers in a special School; but this School gave no degree until 1870. The degree of Bachelor of Divinity was instituted in Harvard University in 1869, and was first conferred in 1870. In consequence of the great change in the functions of the ministry since the middle of this century, and the large additions made to the list of subjects which a minister is expected to know something about, the training for the minis-

try has become less professionally peculiar, and more like that general cultivation which Masters of Arts and Doctors of Philosophy are expected to attain. The Dean points out (p. 154) the tendency to secularization in the ministerial profession. The churches admit studies of a general nature, such as Philosophy, History, Political Economy, and Literature, as qualifying for their pulpits, instead of special studies, such as New Testament Criticism and Interpretation, Systematic Theology, and Hebrew. These widespread changes may conceivably indicate the approach of an interesting reversion, with modifications, to a state of things that existed at Harvard College till the beginning of the present century.

The Dean's report puts in a strong light the undenominational character of the Divinity School, particularly in the passage about the eighteen holders of the Williams Fellowships. Of the fifteen living pastors of churches who held these Fellowships, only one is a Unitarian. The rest all belong to some one of six Evangelical denominations.

The Dean of the Law School points out (p. 160) how rapidly the conviction is spreading that a faithful student should be able in some way to complete the College course and the Law School course in six years; but he also urges, on good grounds, that College undergraduates who propose to obtain the A.B. degree and the LL.B. degree in six years should complete in the first three years all their work for the A.B. The Dean of Harvard College, from a somewhat different point of view, is also opposed to the transfer of Seniors of the College to the Law School when they have not completed their work for the A.B. (p. 115). There can be no doubt, first, that it would be much better for every student, who proposes to save one year out of the seven (Law or Divinity School) or eight (Medical School) now ordinarily devoted to acquiring the A.B. and a professional degree, absolutely to complete his work for the A.B. in the first three years; and secondly, that any student of moderate capacity can perform this task with perfect safety, and yet obtain high grades in his undergraduate studies. The facts on this latter point have already been given in this report. One obvious explanation of the facts is to be found in the large amount of vacation in the academic year. There are

three months and three weeks of vacation in the academic year. No healthy person needs anything like that amount of vacation in a year. The ambitious student has only to utilize for study three-fourths of his vacations for three years to reduce the four years' college course to three years; and he would still have more than five weeks' complete vacation in every year.

The final table in the Dean's report shows clearly how the representation of Amherst, Bowdoin, Brown, Dartmouth, Princeton, and Yale Colleges in the Law School has risen during the past ten years. For two years past other colleges have together supplied many more students to the Law School than Harvard College has.

The Faculty of the Law School was increased in the spring of 1898 by the addition of two professors — Professor Joseph Doddridge Brannan, A.B. 1869, LL.B. 1892, who is to teach Bills of Exchange, Promissory Notes, and Partnership; and Professor Edward Henry Strobel, A.B. 1877, LL.B. 1882, who is to teach International Law as first Bemis Professor. Professor Brannan comes to the Law School from the active practice of law in Cincinnati; Mr. Strobel from the diplomatic service of the United States, especially in Spain, Ecuador, and Chili. The favorable condition of the annual budget of the Law School would make it possible to make several further additions to the Faculty of the School.

The Faculty decided last spring to make during the year now current an interesting experiment in teaching a fundamental subject by a Professor and a young Instructor working together. The subject chosen for this experiment was Criminal Law and Procedure. The method is adapted from one used in the College for large courses in History, Economics, Government, and Philosophy.

The report of the Dean of the Medical School demonstrates the increased activity of all the laboratories connected with the School, first in teaching and secondly in research. It results from this increase and from the rapid growth of the School in numbers (30% in four years), that the present building on Boylston Street, although it was erected so lately as 1883, has already become wholly inadequate. It can be somewhat enlarged on the present lot; but it is obvious that the lot

itself is too small to accommodate the School properly for any considerable number of years. A transfer of the School to some part of the city of Boston where land is cheaper and a large lot can be secured, should at once be planned. The present site of the School ought to be owned by the City of Boston, to provide for an extension of the Public Library.

The Medical School has several times of late had small annual deficits, so that its unrestricted balance has shrunk from \$89,061.85 (August 1st, 1893) to \$73,756.32 (August 1st, 1898). During this same period, however, the total endowment of the School has increased by nearly \$185,000.00, an increase which is represented by three new endowments for professorships, — namely, the George Fabyan, the William O. Moseley, and the Henry Willard Williams Funds. A strong effort will soon have to be made to increase the endowment of this department of the University; and, since no department makes quicker, more direct, or more precious returns to the community, it may be hoped that the effort will be promptly successful. The present School should also be crowned by a Graduate Department proper, in which a body of medical experts should be trained for laboratory service rather than for the ordinary practice of medicine. In this Graduate School the great subjects of Comparative Anatomy, Comparative Physiology, and Physiological Chemistry should be strongly represented, as well as Comparative Pathology, the subject which the George Fabyan Professorship has provided for.

The Dental School continues to be that Department of the University which attracts the largest proportion of students from outside the United States. In 1897-98 twelve per cent. of the students came from other countries.

In the spring of 1898 the Faculty, through a committee, organized a body of competent students who, under direction, go to the hospitals and to the homes of the poor for the purpose of giving dental aid to persons unable to visit the Infirmary. The ministrations of these young men give relief from some of the most acute pains that humanity suffers. The work is at present restricted to the hospitals and a small area

of the city. It might be much extended, if the School had the money to meet the inevitable expenses of a larger service.

An excellent Quinquennial Catalogue, giving much information about all the graduates of the School from its beginning, was prepared during the year under review by Dr. Boardman, and was published in a handsome form. The attention of the Overseers is invited to the Dean's statistics (p. 191) of the operations performed in the Infirmary; more than 7,000 patients were treated during the year, most of them being greatly benefited.

The pecuniary condition of this School will be highly satisfactory so long as it is allowed to enjoy without rent the occupation of the larger part of the former Medical School building on North Grove Street. If that free occupation should cease, it would be in immediate need of a new building of its own.

In the year 1896-97 the Veterinary School showed a deficit of \$5,487.34. At the opening of the year 1897-98 a Committee of the Corporation made careful inquiry into possible changes in the Veterinary Department which might prevent the recurrence of large annual deficits. They recommended that one annual appointment in the School be discontinued; that a position made vacant by a resignation should not be filled again; that the salaries in the School be reduced twenty per cent. excepting the salaries of \$100 or lower; that Professor Lyman take charge of the free clinic at Northampton Street with only student assistants; that the amount of service at the Village Street Hospital be reduced; that only one shoeing-forge be maintained, and that at Village Street; and that the plan of annual subscriptions be re-established. These measures could not be put into full effect before the first of December, but having been loyally carried out by the officers in charge of the School and Hospital they resulted in a substantial reduction of the deficit, so that it amounted for the year 1897-98 to only \$1,728.31, while the efficiency of the instruction was not diminished, and the receipts of the Hospital were slightly increased. Unfortunately the receipts of the School proper for the year diminished in consequence of a reduction in the number of students.

When the Veterinary School was established in 1882 there was no well-recognized veterinary hospital in Boston. There are now three, — that of the University, and two private hospitals, both of which are carried on by graduates of the Harvard Veterinary School. Again, when the School was started, there was no endowed veterinary school in the United States. There are now two schools with substantial endowments, — namely, that of Cornell University and that of the University of Pennsylvania. If the Harvard School is to be maintained in a satisfactory manner it must be endowed; for its forms of instruction are necessarily expensive, like those of the ordinary medical school, and it is no more reasonable to expect a veterinary hospital to support a school, than it would be to expect a hospital for human beings to pay the salaries of a large staff of medical teachers. What is needed to put the Veterinary School on an ample scientific footing is the adequate endowment of professorships of Comparative Anatomy and Comparative Physiology, and the provision for these two departments of adequate laboratories, and of a fund the income of which should be applied to the running expenses of these laboratories. To found the two professorships, build the laboratories, and endow the laboratories adequately, would require about \$400,000. The University already possesses a Professorship of Comparative Pathology, and provides a laboratory for this great subject at the Bussey Institution. With these three Professorships the foundations would be laid not only for an adequate school for veterinary practitioners, but also for an Advanced School of Comparative Medicine. This School should be under the direction of a Faculty of Medicine which should also carry on the three Schools which would train medical, dental, and veterinary practitioners.

In October, 1897, the Corporation authorized Instructor Watson to admit women to his course on landscape gardening at the Bussey Institution during the academic year, and this permission was subsequently extended without limit of time. When the Bussey Institution was first opened as a place of instruction, women as well as men were admitted to it; but they had ceased to attend the institution, except in the spring and autumn Arboretum courses given by Mr. Jack. A demand

having arisen for the admission of a few women to Mr. Watson's course on landscape gardening, the Corporation granted the application on the ground that a knowledge of horticulture and landscape architecture might open to women a field in which they could win success.

Dr. Theobald Smith, Professor of Comparative Pathology, has continued to occupy the laboratories assigned him in the second story of the Bussey Building, and one of the large barns and the stable belonging to the estate have been occupied by animals that Professor Smith was studying, or using in the preparation of the diphtheria antitoxin. A large part of the work carried on by Professor Smith at the Bussey Institution is for the State Board of Health. This work requires barns and paddocks, and other facilities not easily to be procured in a compactly built city.

In March, 1898, Mr. William Coolidge Lane, A.B. 1881, was elected Librarian in place of Mr. Winsor, whose death had occurred the previous October. Mr. Lane came to the University Library from the Boston Athenaeum where he had had charge of the library since 1895; he had previously been Assistant in the University Library, in charge of the Catalogue, from 1884 to 1887; and then Assistant Librarian from 1887 to 1895. He was, therefore, intimately acquainted with the Library and particularly with its Catalogue, and he had also seen service as the head of an important library.

The Librarian discusses in his report (p. 202) the difficult question of the proper relations of the general Library to the Departmental, Laboratory, and Class-Room Libraries, sets in a clear light the different functions of these various collections; and points out the various ways in which these smaller libraries relieve the pressure on Gore Hall. At the same time he regards the scattering of these smaller libraries in many separate rooms and buildings as disadvantageous in many respects, and looks forward to the time when rooms for these collections shall be provided in connection with a new reading-room or in a new section of the present building. He estimates that in Gore Hall and the smaller scattered libraries about forty thousand volumes are directly accessible, without any formalities, to members of the University.

Classification of the books on the shelves has gone on rapidly during the year, especially in the scientific departments, in Philosophy and Sociology, in Oriental Philosophy, and in Italian, Spanish and Scandinavian history and literature.

The Library, like the Museum and Observatory, is one of those departments of the University which has no income from students. Being supported wholly by endowments, their incomes fall with the general fall in the rate of interest on investments. The Library has been a severe sufferer in this respect. Its purchases of books are all made from the income of invested funds, and this income has been steadily falling for more than twenty years past. Additional endowment is the only remedy for this evil. Twenty thousand dollars a year is an insufficient sum wherewith to buy the books urgently needed for the College Library, and the Departmental and Class-Room Libraries. Additional book funds to yield an income of \$8,000 to \$10,000 are very desirable. A book fund is certainly a pleasant benefaction to make; for the readers are agreeably reminded of their benefactor by the book-plate which every volume bought with the income of his fund will bear. A book-fund need not be a large fund: a few thousand dollars the income of which is devoted to the purchase of books in a special department may be the means, in the course of years, of providing the general Library with a remarkable collection of books in that department. In all departments of learning, books are the indispensable tools of advanced scholarship. In the selection of the best books to buy, the University has the advice of a large number of competent specialists, namely, — the University teachers. Establishing a book-fund in a University Library is, therefore, a safe and desirable mode of doing some perpetual service to learning.

The most interesting event at the Gray Herbarium during the year was the offer of \$20,000 as an endowment for a memorial professorship, to be called "The Asa Gray Professorship of Systematic Botany" — a chair of research to be united with the position of Curator of the Herbarium. This offer is conditioned upon the securing before Commencement Day, 1899, of \$30,000 more, to be known as "The Asa Gray Memorial Fund," the income of which is to be used for

salaries and other expenses at the Herbarium. The time within which this second sum must be raised is short; but it may be confidently expected that the memory of the invaluable services of Asa Gray to American Botany will insure the success of the undertaking. The long-continued scientific activity of the Herbarium has been maintained of late years, but only through precarious gifts made for present use. The two funds which it is now proposed to establish would give a measure of security and permanence to the establishment which Dr. Gray founded and inspired.

The Botanic Garden received last summer an admirable gift of a range of greenhouses of the most serviceable construction and very agreeable in design (see the report of the Director, p. 231). The gift is indirectly a fruit of the exhibit made by the University at the Columbian Exposition of Chicago; for the giver was there much interested in the Botanical exhibit of the University. This single gift is in value three-fifths of the total cost of the University's exhibit at the Chicago Fair.

The Garden becomes steadily more and more useful to the students and the public as a place of instruction in Botany. The material it supplies is indispensable to the Botanical courses, both in term-time and vacation. The Museum of Economic Botany becomes more and more ample, and has been steadily improved as regards classification, arrangement, and labelling. The development of the Museum is due, first, to the indefatigable labors of Professor Goodale, and secondly, to the friends who have contributed from year to year the money needed to pay assistants and build cases. Both the Garden and the Museum have suffered a severe loss in the recent death of Colonel Henry Lee, for many years Chairman of the Committee to visit these departments.

The Park Commissioners of the City of Boston having finished building the new road on Peters Hill — the large addition recently made to the territory of the Arnold Arboretum — it will now be possible to begin the systematic planting of that extension. The Arboretum suffers, like all the Departments of the University which have no income from students, from the shrinking of the income on its invested funds; but the gift

of \$2,500 a year for five years from the Trustees of the Massachusetts Society for promoting Agriculture, and the further gift of a permanent fund of \$20,000 received during the year 1897-98 from Miss Abby A. Bradley, in memory of her father, William L. Bradley, have made it possible for the Curator to enlarge somewhat the planting operations at the Arboretum. The splendid work of the Curator entitled, "The Silva of North America," reached during the year its twelfth printed volume.

An unusual number of scientific investigations were carried on during the year in the Chemical Laboratory, all of which are briefly described in the report of the Director (p. 238). The instruction given in Boylston Hall develops from year to year, and has now nearly exhausted the capacity of the building. In the last five years the number of students receiving laboratory instruction has just doubled. If this movement continues, either Boylston Hall must be enlarged, or an additional building erected for the accommodation of the Department. Professor Hill, the Director, has made many valuable improvements in the interior of the building within the last four years; else the capacities of the Laboratory would already have been overtaxed. He has been particularly successful in providing ample ventilation for the laboratories and lecture rooms — a task of no slight difficulty.

Since the lamented death of Professor Josiah P. Cooke in 1894, the Department of Chemistry has been undermanned relatively to the number of its students and to the number of Professors in analogous Departments. It is true that Professor Cooke had charge of the mineral cabinet, and with the aid of an Instructor gave the instruction in Mineralogy; and that this subject with its collections has since his death been transferred to the University Museum and to the charge of another Professor and another Instructor. Still, taking this change into account, the Department of Chemistry proper is entitled to another Professor, or at least to another Assistant Professor.

The comparative neglect of the subject of Physics by the students of Harvard College is a curious phenomenon. Not

only are the advanced courses attended by small numbers of students, which is the case in many other Departments, but the elementary courses do not attract more than one-fifth to one-fourth of the undergraduates of the College and the Scientific School taken together. The most elementary courses in such subjects as History, Government, Economics, and Philosophy are now taken at some period in their undergraduate life by nearly all the students who go through Harvard College. The two elementary courses in Chemistry enrol over four hundred students; but no course in Physics enrolled over 101 students in the year 1897-98. Courses *B*, *C*, and 1, taken together, enrolled only 273 students (see the report of the Director, p. 242); yet the numbers in the courses in Physics were larger this year than they were the year before. One would have supposed that Physics would prove to be the most attractive of all the scientific subjects taught in the University, because of the variety and value of its applications and the intense interest of researches in that subject; but apparently the difficulty of the subject and its strangeness to young men whose education has been almost entirely a training of the memory, deter more men from it than are attracted to it by utilitarian or any other considerations. The result is all the stranger, because there is an active demand for teachers of Physics, as well as for engineers who have received thorough training in the subjects of heat, light, and electricity. During the past year two graduates of the Laboratory obtained full professorships of Physics, and another a valuable position under the American Bell Telephone Company. The Director calls attention to the fact that the endowment of the Physical Laboratory, \$75,000, should be increased because of the continued fall of the rate of interest. .

A report on the Psychological Laboratory is included in the President's Report this year for the first time (p. 245). The Laboratory occupies the whole of the upper story of Dane Hall, which is divided into eleven rooms. The equipment of the Laboratory with the expensive instruments required in psychological research was ample at the beginning, thanks to Professor Münsterberg's intelligent care, and remains good, although in the near future additions to the equipment will be indispensable. It is a laboratory at once for elementary instruction and

for research ; and in both directions it is carried on with great activity. The attention of the Overseers is especially invited to the interesting report of Professor Münsterberg, which illustrates in a striking way the revolution which has taken place in modes of teaching and investigating even in the most abstruse subjects.

The resources of the Observatory were increased during the year by two bequests, one of \$20,000 from Charlotte Maria Haven, and one of \$25,000 from Eliza Appleton Haven, both in execution of wishes expressed by their brother, Horace Appleton Haven (A.B. 1842), more than half a century ago. The Appleton-Haven family of Portsmouth, to which these benefactors belonged, has been connected with Harvard College for many generations, and has been in the habit of contributing through this institution to the promotion of learning and the advancement of science.

The Director of the Observatory describes in his report the peculiar organization of the Harvard College Observatory, which has enabled it in recent years to carry on immense astronomical investigations with remarkable continuity, accuracy, and coöperative enthusiasm in scientific productiveness. Only by reading carefully the Director's report can any adequate idea be obtained of the intense activity of the establishment, of the variety of its work, and of the volume of its publications. Ready coöperation with all other observatories and all other astronomers is a characteristic policy of the Observatory. How much forethought is required in even the lesser investigations carried on at the Observatory may be seen in the description the Director gives of the preparations already made for the adequate observation of the shower of meteors which is expected to occur in the year 1899 (p. 257). The report of the Director contains a sentence which shows that the Observatory is not so much occupied with present labors as to be unmindful of the labors of astronomers long since departed : " A complete reduction is also given of the observations of the light of the stars by Sir William Herschel, from which it appears that a century ago he determined the light of nearly three thousand stars with an accuracy closely approaching that of our best modern catalogues."

The Director of the Museum of Comparative Zoölogy presents his last report on retiring from the charge of the Museum, with which he has been connected almost continuously for thirty-nine years. He has the satisfaction of leaving the Museum in thoroughly good condition, whether considered as a place of instruction, or as an Exhibition of natural history objects for the benefit of the visiting public. The shrinking income of the Museum naturally gives him great anxiety, as it does the Faculty of the Museum and the President and Fellows, the inadequacy of the endowment of the Museum having been painfully apparent for years to all who knew that its growth was mainly due to the expenditures which Mr. Agassiz made upon it year by year from his private fortune. Before closing his connection with the Museum, Mr. Agassiz conveyed to the President and Fellows, by a deed which is printed in full in the Appendix (p. 309), all the collections he has brought together on his various expeditions or bought from collectors; all the copies remaining on hand of Volumes IV to XXXII of the Bulletin and Volumes III to XXIII of the Memoirs; all the publications received in exchange for the Bulletin and Memoirs (now about 3,500 volumes in number); and all the books he has bought during the past twenty years (about 5,000 volumes), together with all the microscopes and other apparatus he has at various times placed in the Zoölogical and Geological Departments. In conveying these collections to the President and Fellows, Mr. Agassiz desired to retain such control over them as might be useful to him in preparing for publication in the Bulletin and Memoirs of the Museum the results of the explorations he has already made and hopes to make; and he also desired to continue to use the Museum as the place of labor for himself and his artists and assistants in preparing such reports. The conditions of the deed of gift will be found printed in the Appendix (p. 310). They were gladly accepted by the President and Fellows. This memorandum also indicates the intention of Mr. Agassiz to convey to the Museum all the collections he may hereafter acquire.

On the 25th of June, 1898, the President and Fellows voted to appropriate the sum of \$18,250 from the income of the

year 1897-98 to complete the repayment to the Museum of Comparative Zoölogy of sums expended by the Museum on behalf of the undergraduate department, in accordance with the following vote passed by the Corporation January 27, 1896:—

Voted, That the sum of \$20,000 and interest thereon at the rate of five per cent. a year from August 1, 1889, be repaid to the Museum of Comparative Zoölogy from College income, as soon as practicable, for expenditures made by the Museum on behalf of the undergraduate department; and that the annual appropriation of \$1,500, voted June 26, 1894 (for the same object) be discontinued.

This sum was a large one to take from the income of a single year; but it seemed desirable to complete this repayment within the Treasurership of Mr. Hooper and the Directorship of Mr. Agassiz. \$5,000 had been paid for this purpose out of the income of the year 1895-96, and \$5,000 more from the income of the year 1896-97. The College has had the enjoyment of the rooms provided for its students at the Museum; and it is on all accounts desirable that the College should do everything in its power to relieve the difficulties of the Museum consequent upon the decline in the rate of interest on its funds invested with the general investments of the University.

The report of the Director of the Peabody Museum of American Archaeology and Ethnology (p. 266), shows that the Museum has many active and interested friends; that it promotes with zeal a few anthropological investigations; and that the instruction in Anthropology and Archaeology given at the Museum is gradually developing, and attracting an increasing number of students. The scientific activity of the Museum is only maintained by means of annual gifts made by some of its devoted friends, chief among whom is Mr. Charles P. Bowditch of Boston. The income from the original endowment would hardly be sufficient to keep the Museum alive, and certainly would not permit any work outside of Cambridge.

The Semitic Museum has quite outgrown its present quarters; but, although nearly one-half the sum needed for an appropriate museum building has been pledged, the building cannot

be begun, since the pledges are contingent on the raising of the whole sum needed. In April last, Mr. Jacob H. Schiff, the founder of the Semitic Museum and the Semitic Library, added \$5,000 to his former benefactions for these objects.

The Gray and Randall collections of engravings were both placed, by votes of the Corporation in 1897-98, in the care of the Curator of the Fogg Museum of Art. The Gray collection of engravings has been completely catalogued on sheets which give much information about the engravers, the different states of the prints, and the kind of engraving. This catalogue is accompanied by an alphabetical index, in which the engravers' names are arranged chronologically by countries. In June last the John Witt Randall collection of engravings, which had been bequeathed to Harvard College but temporarily deposited at the Boston Museum of Fine Arts, was transferred to the Fogg Museum by the action of the Trustees of the Boston Museum. This collection has never been catalogued; and, since it contains about 20,000 prints and drawings, it will be a considerable labor to prepare a proper descriptive catalogue like that already made for the Gray collection. This catalogue, like that of the Gray collection, should be accompanied by subject lists and process lists. Since both the Gray and Randall collections are provided with funds for their maintenance, it may be assumed that the labor necessary to make both collections properly accessible to students will be spent upon them as rapidly as the circumstances permit. From the two collections many instructive series of prints of high artistic and historic value can be from time to time selected for exhibition under glass. Some series of this nature is always on exhibition. The catalogue of photographic slides has been completed during the year; but the catalogue of photographs is still incomplete. The resort to the Museum during the day-time has been considerable; but the number of evening visitors having been but small, it has been decided to discontinue the evening opening, which was decidedly expensive.

The Director calls attention to the obvious fact that the Museum ought to be provided with "a limited series of representative original works of the highest character in the

various important branches of art." Thus, for example, there should be in the Museum a few original paintings of the highest class by all the important schools of art in past times. It is hoped that the Museum will be gradually enriched with such objects through the action of graduates and friends of the University, who are interested in the Fine Arts, and desire to promote a knowledge of them among the successive generations of College students.

The Museum received during the year a bequest of \$15,000 from William Mackay Prichard, of Concord, Massachusetts, "the income only of such fund to be used to increase the Fine Arts collection of said College." It was by Mr. Prichard, then a Counsellor at Law in New York City, that the clauses in the will of Mrs. William H. Fogg which provided for the Fogg Museum of Art and the William Hayes Fogg Endowment, were drawn up.

A detailed guide for the use of visitors to the Mineralogical Museum is in preparation, and large plans have been hung on the main floor and in the gallery to give needed information about the arrangement of the collection. Explanatory labels for each case are also to be provided. The Director is of opinion that the instructiveness and interest of a collection of minerals can be greatly enhanced by guiding diagrams, ample descriptive labels, and synoptic displays of selected specimens to illustrate crystallography, the physical characteristics of minerals, and their genesis and mode of occurrence.

All three of the gentlemen belonging to the department of Mineralogy and Petrography prosecuted mineralogical investigations, and two of them brought their work to the stage of publication (p. 284).

The number of students in Radcliffe College during the year was 424, a gain of 54 over the preceding year; and included in this number were 61 graduate students, 40 of whom came from other colleges than Radcliffe. It is obvious that the reputation of the College for good work and especially for good advanced work is improving and extending.

The Dean reports (p. 286) large gifts to the College during the year, — another evidence of the interest and confidence

which the College is inspiring. No progress was made during the year in the settlement of the question whether Radcliffe should give the degree of Doctor of Philosophy. In the judgment of the President of the University, the rank of Radcliffe College will not be satisfactorily fixed and recognized, until it gives its own degree of Doctor of Philosophy with the same endorsement from the President of Harvard University which the Radcliffe A.B and A.M. diplomas uniformly bear.

The number of consultations with the Medical Visitor and his Assistant increases from year to year, while the cases of illness have decidedly diminished in number both in 1896-97 and in 1897-98. The Medical Visitor is inclined to believe that the reduction in the number of cases of reported illness is in part due to the freer and earlier consultation with the Medical Visitor. Tables showing the nature of the diseases which prevailed among the students in each month of the year, and the number of days of illness in each month, are printed in the Appendix (p. 312), together with a table showing the causes of illness and the number of cases in each month of four successive years. There will also be found in the Appendix (p. 315) the Medical Visitation Card, which was sent to all students at the beginning of the year 1897-98. A defect of this system is that there is no provision for emergencies between 5.30 P.M. and 8 A.M. Mumps prevailed in the University to a most unusual extent in the months of March and April, 1898. This was the only disease that exhibited an unusual prevalence.

The University is now provided at the Cambridge Hospital with the means of dealing promptly and effectively with cases of diphtheria and scarlet fever; and examinations for suspected diphtheria can be obtained within twenty-four hours. The laboratory of Physiology and Hygiene is now equipped for the examinations necessary to the diagnosis of typhoid fever, tuberculosis, malaria, and diseases of the kidneys. There still remained unsupplied at the end of the year 1897-98 the great need of an infirmary, where sick students could be comfortably and safely taken care of. This need has been supplied since the opening of the present year by a gift of \$50,000 for this purpose from Mr. James Stillman of New York City.

Quite beyond all provisions for students already sick, lies the pressing need of friendly, judicious health advice for the thousands of young men brought together at the University, many of whom are densely ignorant not only of the manifestations of disease, but of the means of maintaining health and strength. The medical visitation has brought out this fundamental need in a very clear way, but it is not adapted to meet the need completely. No medical visiting which has close connection with the record of absences at the University Offices can completely answer the fundamental hygienic objects.

In consequence of the great increase in the financial business of the Corporation, the appropriations for salaries in that department have necessarily been increased. Two new officers have been appointed—namely, the Comptroller and the Assistant Bursar—and some moderate increases of salary have been made in this department. At the same time, the maximum salary of a full professor has been advanced by five hundred dollars in all departments of the University; so that the maximum salary of a professor in the Law School is now \$5,500, and in the other departments \$5,000. The salary of the President was also raised by one thousand dollars, being the first change made since 1869 in that portion of his salary which is not derived from special funds.

At the instance of the Committee of the Corporation, the Class of 1897 made certain improvements in the Class Day exercises conducted about the old tree standing between Harvard Hall and Holden Chapel; but, although the exercises were made more agreeable and the disposition of the assembly was made much safer, it clearly appeared that the space around that tree was entirely inadequate for the safe accommodation of the thousands of persons who wished to witness the exercises. Accordingly, the Class of 1898, quite of their own accord, transferred the five o'clock exercises of Class Day to the triangle lying west of Memorial Hall, and invented exercises of a new sort. The new area is much larger than the old; and doubtless by condensation and abbreviation the new exercises around the Statue can be made as satisfactory to the assembly as the old exercises were around the tree.

Early in the year the President and Fellows received from "the J. W. and Belinda L. Randall Charities Corporation" "\$70,000 for the erection and equipment of a building for use as a Commons Hall by such students as desire to economize, under such regulations as the President and Fellows shall from time to time determine." The first care of the Corporation was to provide a site for this building. Accordingly the Corporation sold their lot on Holyoke Street in rear of Holyoke House, with certain reservations, and with the proceeds bought the estate on Kirkland Street on the east side of Divinity Avenue. This lot was more than twice as large as the Holyoke Street lot, and had great advantages as regards light and air. The plans for the new dining hall were prepared by Messrs. Wheelwright and Haven; and contracts were made in the spring covering the erection of the building and its equipment. The work was begun in June, and it is hoped that the building will be ready for use by the 1st of July next. It is to be conducted on the general plan of the Foxcroft Club; and on this plan it is supposed that it can accommodate from 1200 to 1500 students. Unless some unexpected difficulties arise, due to the size of the building and the scale of its equipment, the new hall will be a great addition to the facilities that the University provides for students who wish to live frugally.

In the early spring of 1898 the Scheme under which the Dining Hall Association has been carried on in Memorial Hall was revised, and after full consideration and conference between a Committee of the Corporation and the Government of the Hall, a modified Scheme was adopted by the Corporation on the 25th of April. The modified Scheme will be found in the Appendix (p. 315.) The former Scheme, originally adopted in 1874, had been in force with but slight amendments ever since. The new Scheme differs from the old in the manner of choosing the President and Directors, in its description of the duties of the Auditor, and in the amount of the compensation of the Steward. It is noticeable that of the ten Directors six are to be chosen under the new Scheme "at large from Harvard College and the Lawrence Scientific School taken together." This new provision originated with the officers of the Association, and is another indication of the social merging

of these two undergraduate departments which has gradually come about within the past ten years.

The compensation of the Steward under the new Scheme, as under the old, is derived partly from a fixed salary, and partly from head-money, payable each week for every person who boarded that week at the Hall, the head-money diminishing as the price of board rises above \$4. The amount of head-money under the original Scheme, reasonable enough when there were only five hundred students in the Hall, became unnecessarily large when eleven hundred and fifty students were annually admitted to the Association. The new Scheme, therefore, provides for a considerable reduction of the head-money. On the whole the administration of the Dining Hall has been carried on for nearly twenty-five years by the President and Directors in a very serviceable and orderly way, with no need whatever of interference by any Faculty, and with very small cost of time or labor on the part of the Corporation. The Hall has been invaluable to the Cambridge departments of the University; and yet it has cost the University only a moderate amount of clerical labor in the Bursar's office, where the bills of the Hall are paid and its dues collected. The decided success of the student administration of this Hall encouraged the Corporation to undertake the building of the new Randall Dining Hall.

After severe usage for twenty-four years it became necessary to reconstruct the drains and sanitary arrangements in the basement of Memorial Hall. The work was accomplished during the summer vacation of 1898. The cost of these improvements was charged to the Dining Association, to be added, so far as might be necessary, to the advances made by the College and repaid by the Association in annual instalments with interest. The annual instalment is \$1,500 a year, a charge easily borne by an Association which contains at least 1,150 members.

A new Steward, Mr. C. B. Fogler, took charge of Memorial Hall by appointment of the Corporation at the beginning of the year 1897-98, the former Steward, Mr. J. J. Sullivan, having retired at the end of the preceding year. Mr. Sullivan was Steward of Memorial Hall for fourteen years—a long period of service in such a capacity. He conducted the business of the Hall with decided ability, and during his admini-

stration the membership much more than doubled. The Corporation parted from him with regret at the instance of the Board of Directors, as provided in the Scheme of the Hall.

In March, 1898, the Corporation decided to put bath-rooms with hot and cold water in all the chamber buildings in the College Yard, and into College House. This improvement was made necessary by the competition with the College buildings of private chamber buildings and private houses which made ample provision of such facilities for the benefit of their tenants. In order to earn some income on the cost of the improvements, the rents of the rooms in Hollis, Stoughton, Holworthy, Thayer, Weld, Grays, Matthews, and College House were slightly increased; but actual tenants in those halls who reengaged their rooms for the year 1898-99 were not required to pay the increase in price during that year. The rents of rooms in the chamber buildings owned by the College remain much lower than the rents charged for similar accommodations in the private chamber buildings in the vicinity of the College. All the chamber buildings belonging to the University are now provided with ample bathing facilities; for the newer buildings were provided with bath-rooms when they were first erected. There is also a very ample provision of such facilities at the Gymnasium and the Locker Building on the Soldier's Field. The hot water for the bath-rooms in the Yard had to be heated by steam brought from the central plant in University Hall.

While the necessary changes in the steam distribution were being made the Corporation thought it expedient to provide steam heat for both Harvard and Massachusetts Halls, which for many years had been imperfectly heated by hot-air furnaces; at the same time the ventilation of those two buildings was greatly improved. It was especially important to provide good ventilation in Harvard Hall because about one-third of that building is used for departmental reading-rooms which are much used without intermission throughout the day. The ventilation of Gore Hall having long been unsatisfactory, additional ventilating apparatus was put into that building during the summer. The improvements mentioned in this paragraph have cost \$44,295. This is one of those very desir-

able and even necessary expenditures which unfortunately have to be made either from free income or from the principal of unrestricted funds.

In October, 1897, the President and Fellows made an agreement with the Metropolitan Park Commission whereby the Commission acquired over forty acres of the Longfellow marsh and adjacent pieces on the south side of the Charles without making any pecuniary compensation therefor, the University to have the use of somewhat more than a quarter of a mile of the river bank nearest the bridge for its boating purposes, and the territory remaining to the President and Fellows to be suitably fenced by the Commission. This agreement was made in continuation of the established policy of the University to coöperate in every way within their power with the three Commissions engaged in creating parks and parkways for Boston, Cambridge, and the Metropolitan District. The President and Fellows believe that the interests of the University in coming generations will be greatly promoted by the work of these Commissions.

The work of the Metropolitan Park Commission on the south side of the Charles River and west of the Boylston Street bridge is advancing rapidly, and has already caused great improvement along the bank of the river and in the vicinity of the Soldier's Field. The salt water creeks that penetrated the marsh at various points have been filled; the marshes are no longer covered with salt water at unusually high tides, a dike having been completed along the river bank as far as the Abattoir in Brighton; and a large amount of gravel has been placed on the future parkway which follows approximately the curve of the river. The Commission kindly permitted the Committee on the Regulation of Athletic Sports to purchase from their contractor, on favorable terms, gravel for grading certain parts of the College marsh adjacent to the new driveway and to the Soldier's Field.

The takings of the Metropolitan Park Commission, the University grounds on the south side of the Charles, and the large playground on Western Avenue purchased by the City of Boston, make it certain that there are to be in that locality broad, contiguous areas held permanently open; and it is already

evident that the University playgrounds may be made beautiful in themselves and in their surroundings, provided that the hideous wooden banks of seats—which are now supposed to be necessary—can be done away with.

The new Carey Building on the Soldier's Field, replacing the building which bore the same name on Holmes Field, was completed early in the spring of 1898 and was almost immediately utilized, on the breaking out of the war with Spain, for target practice with reduced charges. The inside of the Locker Building was considerably improved during the year.

By vote of September 28th, 1897, a site was assigned for the Phillips Brooks House in the north-western corner of the Yard in a position symmetrical with those of Harvard, Holden, Hollis, and Stoughton; and in the following March the Committee charged with its erection submitted plans and contracts for the House, which the Corporation were glad to approve, the contract price being about \$51,000. The style of the building and its decorative details were determined by those of the contiguous buildings. The architect is Mr. Alexander Wadsworth Longfellow. The building is very carefully constructed in all respects. It will hardly be finished and furnished before the close of the current academic year.

The vestibule of Memorial Hall has been enriched at the north end by a great window in superb colored glass. Mr. Martin Brimmer, shortly before his death in 1896, had commissioned his friend Mrs. Henry Whitman to construct a stained glass window for this conspicuous position. The window was unveiled for Class Day and Commencement, 1898, but was not finished till the following October, the artist having wished to make some changes in it during the summer. It is a costly and splendid window, original in conception, full of various design, and made of glass of precious quality; and it is all the more interesting because the face of one of the principal figures—the warrior's—recalls the lineaments of Martin Brimmer.

At the close of the academic year 1896-97, no conclusion had been reached in the negotiation between the President and Fellows and the Government of the Massachusetts Institute of Technology concerning an alliance between the Institute and

the Lawrence Scientific School. Committees of Conference had been appointed by the two institutions; and at a meeting of the President and Fellows on June 21st, 1897, at the instance of their Conference Committee, it was

Voted, That this Board is willing to modify or limit the present scheme of instruction in technical subjects at Cambridge, if the Corporation of the Institute is willing to consent to some satisfactory plan for the ultimate union of the two institutions.

On the 3rd of January, 1898, after a prolonged interchange of opinions between the two Committees of Conference, the Committee of the Corporation reported the following memorandum of agreement which the two Committees recommended for adoption by the Governing Boards of their respective institutions:—

SECTION I. — Each Corporation shall continue to hold all property which it now applies to the purposes of its own school or schools.

SECTION II. — The income of all funds which either institution may now hold, or hereafter acquire, applicable to the instruction in industrial science, shall be placed at the disposition of the associated school, subject to the terms of the respective gifts.

SECTION III. — It is understood that the branches of industrial science whose teaching is to be relinquished by Harvard University, at some date to be fixed by the University, are those now taught in the departments of Engineering — Civil, Electrical, and Mechanical — Mining and Metallurgy, and Architecture.

SECTION IV. — The Massachusetts Institute of Technology shall be the associated school, and shall be regarded as the only school of industrial science in connection with Harvard University.

SECTION V. — The five Fellows of Harvard College shall be members of the Corporation of the Massachusetts Institute of Technology, and two of them members of its Executive Committee.

Whereupon it was

Voted, That the President and Fellows adopt the memorandum of agreement reported from the Committee of Conference, subject to the interpretation contained in the following vote:

Voted, That the object of the President and Fellows in making this agreement with the Massachusetts Institute of Technology is the ultimate bringing together of the two schools of applied science, each corporation having a due responsibility in the conduct thereof; and that subjects of instruction now dealt with in either the Lawrence Scientific School or the Institute shall be relinquished in favor of the associated

school only so fast and so far as instruction in those subjects shall be made conveniently accessible to students registered in either school.

On the 31st of the same month, the following communication was received from the Committee of Conference on the part of the Institute of Technology : —

TO THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE :

GENTLEMEN, — The conditions upon which the Corporation of the College is prepared to accept the agreement drawn by the Conference Committee so modify its tenor that the Representatives of the Institute feel unable to recommend it to their Corporation in the form it has now taken.

Although the result has disappointed our expectations, we still feel convinced that as friends and earnest promoters of Instruction we can so direct the course of our respective institutions that they shall mutually help one another and avoid duplication of work.

It is possible that such a result may be better attained by a friendly interpretation of our common purpose than by any attempt at a formal agreement.

In that hope, we remain

Yours truly,

(Signed)	{	AUGUSTUS LOWELL.
		J. M. CRAFTS.
		GEORGE WIGGLESWORTH.
		HOWARD A. CARSON.
		T. K. LOTHROP.

Boston, January 10, 1898.

Whereupon the President and Fellows voted to send the following communication to the Committee : —

The President and Fellows regret that the alliance with the Massachusetts Institute of Technology proposed by them in a communication dated 12 April 1897 has failed.

The President and Fellows cordially recognize the friendly spirit of the letter of the Committee of Conference of 10 January 1898, and will at any time meet the authorities of the Massachusetts Institute of Technology in consultation for the purpose of avoiding unnecessary duplication of instruction.

It will be observed that the negotiation was closed by the Committee of Conference on the part of the Institute, apparently without procuring any formal action on the subject by the Corporation of the Institute. During the progress of the negotiations both parties became convinced that no substantial

economies would result from the union of the two schools so far as the elementary instruction was concerned. In the general administration and in the advanced instruction given to small classes a saving might undoubtedly have been effected by an intimate union of the two establishments.

The work in the Bursar's Office at Cambridge has increased very much during the last few years, partly because of the increase in the number of students, but also because payments and collections for the Boston departments are now all made at the Bursar's Office in Cambridge. To maintain the full efficiency of the office, and to provide for the inevitable occasional absence of the Bursar, the Corporation appointed in November, 1897, an Assistant Bursar, Mr. William M. McInnes, a graduate of the College (1885) and the Law School.

Mr. Allen Danforth, Bursar from 1874 to 1888, and Deputy Treasurer since 1888, was appointed to the new office of Comptroller on the 29th of November, 1897. It is the chief duty of the Comptroller to gather and arrange information about the property, affairs, and business records of the University, and to report thereon to the Corporation at his discretion. He is also to act on request, as an adviser to the Corporation concerning the plans and sites of new buildings; and he may perform temporarily some of the duties of the Treasurer.

Mr. Danforth has acquired in the course of his twenty-four years of service as a financial agent of the University, an unequalled knowledge of the University real estate—its history, present condition, and past and present profitableness; and he has also a thorough acquaintance with the accounts in both the Treasurer's and the Bursar's Office. He has long been a trusted adviser of the Treasurer and the Corporation in regard to everything relating to the condition, care, and uses of the University property.

On the 14th of November, 1898, the Corporation received from the Comptroller a statement of the results of Mr. Hooper's treasurership from 1876 to 1898—a statement which he had begun to prepare four months earlier, and which had required a revaluation of every piece of property in the possession of the University, both real and personal. The full state-

ment will be found in the Appendix (p. 318). It was entered in full on the records of the Corporation as a striking exhibition of the great service which an alert, skilful, and sagacious Treasurer can render to the University. It appears from this statement that the number of funds and balances in the Treasurer's books increased during the twenty-two years by 243 per cent. ; that the amounts of these funds and balances increased 325 per cent. ; that the total annual income of the University increased 236 per cent. ; that the gain on property bought by Mr. Hooper, partly sold but chiefly held, was a million dollars ; that the surplus of the estimated cash value of the general investments over their book valuation increased between 1876 and 1898 from 5 per cent. to 16 per cent. ; and that the estimated increase, excluding gifts, in the value of the property now belonging to the general investments, was a million and a quarter dollars. The President and Fellows declared, and put on record, their opinion that the University rests under lasting obligations to Mr. Hooper for greatly increasing its property in spite of adverse conditions and troublous times, and for inspiring throughout the community a well-grounded confidence in its financial management—an opinion in which all the alumni and friends of the University heartily unite.

On April 28, 1898, the Treasurer reported to the Corporation that \$750,000 had already been received from the munificent bequest of Henry L. Pierce, of which \$50,000 is restricted as to the principal only, while \$700,000 is wholly unrestricted. The uses to which this unique gift is to be applied had not been determined by the President and Fellows at the end of the academic year. They have felt it necessary to take ample time to consider the most useful and honorable applications of this great addition to the pecuniary resources of the University. The objects should be, first, comprehensively useful ; secondly, permanent ; thirdly, difficult of attainment except through large endowment ; and finally, they should provide for the perpetual commemoration of the enlightened benefactor in agreeable and honorable ways. There is still a considerable sum of money to come to the University from this great estate.

Four new buildings in addition to those already mentioned in this Report are much needed for the Cambridge departments of the University : (1) A building to contain lecture rooms for the use of the language departments, and those of Philosophy, History, and Economics. The increase in the number of students since Sever Hall was built in 1880 is so great, that the present accommodations in the College Yard are entirely inadequate. (2) A building for the Department of Engineering. This Department has grown rapidly during the last eight years, and although it has acquired the Rogers Building (the old gymnasium) and has occupied the whole of Lawrence Hall, its accommodations are still very insufficient. On account of the large amount of drawing which is done by students of this subject, much space is needed for drawing tables ; and the drawing rooms ought to be especially constructed for their purpose, because the requirements as to light and air are peculiar. This building would naturally be placed in the neighborhood of Lawrence Hall and of the Jefferson Physical Laboratory. (3) A building for the Department of Architecture. This growing Department needs a building to contain spacious drawing rooms, a room for its working library, and rooms for its illustrative collections of casts, models, and photographs. It should also contain two lecture rooms, one of which should be equipped for lectures illustrated by the lantern. This building should stand not far from the Fogg Museum because the collections of that Museum are in many respects important to students of Architecture. (4) A dormitory of a new sort intended for students of moderate means who propose to spend only one or two years in Cambridge. These short-residence students have increased rapidly in number during the past fifteen years. They are mainly persons who enter the College with advanced standing, members of the Graduate School, Special Students in the College and Scientific School, and Graduate members of the Divinity School. With the exception of the Special Students, they are apt to be persons who have been already connected with some other college or university. For this class of students a dormitory with furnished rooms of moderate size would be better adapted than any of the dormitories now owned by the University. Such a building would naturally be placed on Jarvis Field. It would

yield a small but secure income at rents lower than the prevailing rates for furnished rooms in private houses. It should have a fire-proof construction, like that of Perkins Hall or Conant Hall; and its internal arrangements should be plain, but convenient and perfectly wholesome. All the chambers should be planned for one occupant only; and they should all be supplied with simple, solid furniture.

The attention of the Overseers is respectfully invited to the following reports by the Deans of the Faculties and Schools and the Directors of the scientific establishments.

CHARLES W. ELIOT, *President.*

CAMBRIDGE, 9 January, 1899

REPORTS OF DEPARTMENTS.

THE FACULTY OF ARTS AND SCIENCES.

TO THE PRESIDENT OF THE UNIVERSITY: —

SIR, — As Dean of the Faculty of Arts and Sciences I have the honor to present the following report for the academic year 1897-98. In preparing this report I labor under the disadvantage of having been absent from the University, and having therefore taken no part in the deliberations of the Faculty, during the whole of the year in question. Under these circumstances it has seemed to me proper to confine myself to a statement of the necessary facts, as they appear on the records, with such explanations as may be required, and to refrain from any attempt to expound or discuss the policy of the Faculty in its action on the various measures which came before it. I may, furthermore, leave such measures as especially concern the several departments under the charge of the Faculty, in the more competent hands of the Deans of those departments, for such report as they may deem fitting. There remain, then, three topics of general interest which properly come within the scope of this report, — instruction, the establishment of the degree of Master of Science, and the revision of the requirements for admission.

Instruction given in 1897-98.

The following list includes all the courses of instruction that were *actually given* under the authority of the Faculty in 1897-98, with the name of the instructor and the number of students of various classes and departments in each course. This list differs from the one published in the Catalogue for 1897-98 in some details, and in omitting such courses as were withdrawn, because not taken by a sufficient number of competent students or for other reasons.

Courses of Instruction are classed as *full courses* or *half-courses*, according to the estimated amount of work in each, and its value in fulfilling the requirements for a degree. Half-courses are designated in the following list by the abbreviation *Hf.* All others are full

courses. The figure 1 or 2, attached like an exponent to the number of a course, indicates that the course was given in the first or in the second half-year. Courses not so designated extended through the year.

The following abbreviations are used to designate the classes of students in the several courses: — Gr. for Graduate Student; Se. for Senior; Ju. for Junior; So. for Sophomore; Fr. for Freshman; Sp. for Special Student of Harvard College; Sc. for Scientific Student; Di. for Divinity Student; Law for Law Student; Me. for Medical Student; Bu. for Bussey Student; R. for Radcliffe Student. The enumeration of students may, in some instances, be incomplete; since it sometimes happens that a student is in regular attendance on a course, without being officially enrolled or otherwise recorded as participating in it.

COURSES OF INSTRUCTION GIVEN IN 1897-98.

Semitic Languages and History.

For Undergraduates and Graduates: —

1. Professor LYON. — Hebrew. — Mitchell's Hebrew Lessons. — Explanation of parts of Genesis and of the Psalm-book. 8 hours.
1 Se., 1 So., 3 Di. Total 5.
6. Professor LYON. — Babylonian-Assyrian History. — Contact of the Babylonians and Assyrians with the peoples of the Mediterranean coasts and islands. — Diffusion of the Babylonian-Assyrian culture through the Phoenicians. *Hf.* 1 hour. 5 Se., 3 Ju., 2 So., 2 Sp. Total 12.
12. Professor LYON. — History of Israel, political and social, till the death of Herod the Great. 2 hours.
23 Se., 13 Ju., 22 So., 1 Sp., 1 Sc., 3 Di. Total 63.
- 16¹. Professor TOR. — History of pre-Christian Hebrew Literature. 4 hours. 1st half-year. 1 Se., 1 Sp., 1 Di. Total 4.
18. Professor TOR. — History of the Hebrew Religion, with comparison of other Semitic religions. 2 hours. 1 Se. Total 1.
15. Professor TOR. — History of the Bagdad Califate. — Mohammedanism in Egypt and India. — Lectures on the Literature. — The Korān. *Hf.* 1 hour. 6 Se., 4 Ju., 6 So., 1 Fr., 1 Di., 1 Me. Total 19.

Primarily for Graduates: —

2. Professor TOR. — Hebrew (second course). — Syntax. — Interpretation of parts of the Prophets and the Poetical Books. — Criticism of selected portions of the text. 2 hours. 1 Se., 1 Sp. Total 2.
- 3². Professor LYON. — Biblical Aramaic. — Kautzsch's *Biblisch-Aramäische Grammatik*. — Interpretation of parts of Ezra, Daniel, and the Targums. *Hf.* 2 hours. 3d half-year. 1 Sp., 1 Di. Total 2.

5. Professor LYON. — Assyrian (second course). — Delitzsch, *Assyrian Grammar*. — The Chaldean Epic. — Letters and Commercial Documents. 8 hours. 1 Gr., 2 Dl. Total 3.

Indo-Iranian Languages.

For Undergraduates and Graduates : —

- 1st. Professor LANMAN. — Elements of the Sanskrit language. — Easy prose and verse. *Hf.* 8 hours. 1st half-year. 1 Gr., 1 So. Total 2.
- 2nd. Professor LANMAN. — Classical Sanskrit (second year). — Course for rapid reading. — Episodes from the Mahā-Bhārata. — The drama Çakuntalā. — Bhartrihari's Epigrams. *Hf.* 8 hours. 1st half-year. 1 Gr. Total 1.

Primarily for Graduates : —

- 3rd. Professor LANMAN. — Vedic Sanskrit. — Introduction to the language and literature of the Vedas. *Hf.* 8 hours. 2d half-year. 1 Gr., 1 R. Total 2.

Classical Philology.

Primarily for Undergraduates : —

GREEK.

INTRODUCTORY LECTURES provided for the students in Courses B and C.

- (1) Dr. BABBITT — Lysias and his Times.
- (2) Professor GOODWIN. — Socrates and Plato.
- (3) Dr. GULICK. — Elegiac, Iambic, and Lyric Poets.
- (4) Professor WHITE. — The Greek Theatre.
- (5) Professor WRIGHT. — Dramatic Performances.

- A. Dr. F. C. BABBITT. — Homer (*Iliad* and *Odyssey*, selections). — Reading at sight. 8 hours. 1 Gr., 3 So., 12 Fr., 3 Sp. Total 19.
- F. Dr. F. C. BABBITT. — Greek Prose Composition (elementary course). *Hf.* 1½ hours. 2 So., 10 Fr. Total 12.
- B. Dr. F. C. BABBITT and Dr. GULICK. — Lysias (selections). — Plato (*Apology* and *Crito*). — Elegiac, Iambic, and Lyric Poetry (selections). — Euripides (*Medea*). — Reading at sight. 8 hours. 1 Ju., 3 So., 26 Fr. Total 30.
- C. Dr. F. C. BABBITT and Dr. GULICK. — Lysias (selections). — Plato (*Apology* and *Euthyphro*). — Elegiac, Iambic, and Lyric Poetry (selections). — Euripides (*Iphigenia among the Taurians*). — Reading at sight. 8 hours. 5 So., 50 Fr. Total 55.
- E. Dr. GULICK. — Greek Prose Composition (second course). — Goodwin's *Moods and Tenses*. *Hf.* 1½ hours. 1 Se., 2 So., 15 Fr. Total 18.
2. Dr. GULICK. — Aristophanes (*Birds*). — Aeschylus (*Prometheus Bound*). — Thucydides (Book I). — Sophocles (*Oedipus Tyrannus*). — Collateral reading of the *Plutus* of Aristophanes. — Reading at sight. 8 hours. 1 Se., 3 Ju., 19 So., 4 Fr., 1 Sp. Total 28.
3. Mr. C. P. PARKER. — Greek Prose Composition (third course). — Translation and original composition (narrative and descriptive). *Hf.* 1 hour. 1 Gr., 1 Se., 3 Ju., 9 So. Total 14.

LATIN.

INTRODUCTORY LECTURES provided for the students in Courses *B*, *C*, and *D*.

- (1, 2) Asst. Professor HOWARD. — Books and Methods of Publication in Ancient Rome. — The Metrical and Musical Element in Roman Comedy.
 (3) Dr. BOTSFORD. — The Roman Historians.
 (4) Asst. Professor MORGAN. — Livy.
 (5) Dr. MANNING. — The Roman Theatre.

A. Mr. BURRAGE. — Cicero (selected speeches). — Virgil. — Practice in reading at sight. 3 hours. 4 Gr., 2 Se., 6 So., 17 Fr., 11 Sp., 2 Sc. Total 43.

F. Dr. MATHER. — Latin Composition (elementary course). *Hf.* 1½ hours.
 1 Se., 3 So., 7 Fr., 1 Sp. Total 12.

B. Asst. Professor HOWARD, Dr. MANNING, and Dr. MATHER. — Livy (Books XXI and XXII). — Selections from Lyric, Elegiac, and Iambic Poetry. — Terence (Phormio and Heautontimorumenos). — Reading at sight. 3 hours. 2 So., 27 Fr., 2 Sp. Total 31.

C. Mr. C. P. PARKER, Dr. MANNING and Dr. MATHER. — Livy (Book I). — Selections from Lyric, Elegiac, and Iambic Poetry. — Terence (Phormio and Andria). — Reading at sight. 3 hours. 3 So., 33 Fr., 3 Sp. Total 39.

D. Mr. C. P. PARKER and Asst. Professor HOWARD. — Cicero (De Senectute). — Livy (Books I and II or XXI and XXII). — Selections from Lyric, Elegiac, and Iambic Poetry. — Terence (Phormio and Adelphoe). — Reading at sight. 3 hours. 3 So., 58 Fr., 1 Sp. Total 62.

E. Dr. MANNING. — Latin Composition (second course). — Translation of English narrative. *Hf.* 1½ hours. 2 Se., 2 So., 17 Fr. Total 21.

1. Asst. Professor MORGAN. — Horace (Odes and Epodes). — Tacitus (selections from the Annals). — Reading at sight. 3 hours.
 1 Se., 3 Ju., 27 So., 2 Fr. Total 33.

2. Mr. C. P. PARKER. — Tacitus (selections from the Histories). — Horace (Odes and Epodes). — Reading at sight. 3 hours.
 1 Gr., 4 Ju., 19 So., 2 Fr., 2 Sp. Total 28.

3. Mr. C. P. PARKER. — Latin Composition (third course). — Extended study of Idiom. — Practice in translation. *Hf.* 1 hour.
 2 Gr., 2 Se., 3 Ju., 9 So. Total 16.

For Undergraduates and Graduates: —

GREEK.

6. Professor WRIGHT. — Demosthenes (On the Crown, with parts of the Oration on the Embassy). — Aeschines (Against Ctesiphon). — Aeschylus (Seven against Thebes). — Sophocles (Antigone). — Aristophanes (Frogs). — Collateral reading. 3 hours. 3 Gr., 4 Se., 12 Ju., 1 So. Total 21.

7. Professor WRIGHT. — Greek Prose Composition (fourth course). — Written composition in the style of Demosthenes and of Plato, with studies of classical models. — Translation of selections of standard English (rhetorical and philosophical). *Hf.* 1 hour. 6 Gr., 6 Se., 1 Ju. Total 13.
8. Professor GOODWIN. — Plato (Republic). — Aristotle (Ethics, Books I-IV and X). 8 hours. 6 Gr., 9 Se., 2 Ju., 1 So. Total 18.
- 5¹. Dr. F. C. BABBITT. — The Elements of Modern Greek. *Hf.* 8 hours. 1st half-year. 1 Gr., 1 Se. Total 2.

LATIN.

6. Asst. Professor HOWARD. — Suetonius (selections). — Pliny (selected Letters). — Juvenal (the principal Satires). — Martial (selected Epigrams). 8 hours. 1 Se., 15 Ju., 1 So. Total 17.
- 13². Dr. MANNING. — Catullus and the Elegiac Poets. *Hf.* 3 hours. 2d half-year. 2 Se., 2 Ju., 1 So. Total 5.
7. Professor GREENOUGH. — Practice in Latin expression and style (narrative and descriptive). — Translation into Latin prose. — Original essays in Latin. *Hf.* 1 hour. 4 Gr., 4 Se., 3 Ju. Total 11.
8. Professor GREENOUGH. — Plautus (three plays). — Lucretius. — Horace (Satires and Epistles). 8 hours. 3 Gr., 11 Se., 1 Ju., 1 So. Total 16.
- 14². Mr. W. M. LINDSAY. — Latin Grammar (Sounds and Inflections) treated in connection with Greek Grammar. *Hf.* 3 hours. 2d half-year. 8 Gr., 1 Se., 1 Ju. Total 10.
9. Professor GREENOUGH. — Practice in Latin expression and style (exposition and argument). — Original essays in Latin. *Hf.* 1 hour. 1 Gr., 1 Se. Total 2.
10. Professor GREENOUGH. — The Private Life of the Romans, chiefly as illustrated by works of art. — Lectures, with collateral reading. 8 hours. 10 Gr., 37 Se., 35 Ju., 27 So., 5 Fr., 7 Sp., 24 Sc., 2 Me. Total 147.

CLASSICAL PHILOLOGY.

Primarily for Graduates:—

25. Asst. Professor HOWARD. — Introductory Course in the Text-Criticism and Interpretation of Classical Authors: for 1897-98, Suetonius (Nero). *Hf.* 1½ hours. 10 Gr. Total 10.
- 44¹. Professor GOODWIN. — Thucydides. *Hf.* 3 hours. 1st half-year. 9 Gr., 1 Se., 2 R. Total 12.
48. Professor WHITE. — Demosthenes. 2 or 3 hours. 15 Gr., 1 Se., 3 R. Total 19.
- 27². Professor GOODWIN. — The Politics of Aristotle. *Hf.* 3 hours. 2d half-year. 5 Gr. Total 5.
54. Mr. RORER. — The Acts of the Apostles. 2 hours. 1 Se. Total 1.
- 30². Mr. W. M. LINDSAY. — Plautus, with study of the Captivi. *Hf.* 3 hours. 2d half-year. 4 Gr., 2 Se. Total 6.

- 56^o. Asst. Professor MORGAN. — Roman Satire from Ennius to Juvenal. — Lectures and special studies. *Hf.* 3 hours. 2d half-year. 6 Gr., 1 Se. Total 7.
- 57ⁱ. Professor GREENOUGH. — Caesar's Gallic War. — Studies in topography and archaeology. *Hf.* 3 hours. 1st half-year. 3 Gr., 1 Se., 2 R. Total 6.
- 58². Professor GREENOUGH. — Latin Grammar (Syntax). *Hf.* 2 or 3 hours. 2d half-year. 6 Gr., 3 Se., 3 R. Total 12.
59. Asst. Professor HOWARD. — Introduction to Latin Palaeography. *Hf.* 1½ hours. 5 Gr. Total 5.
- 59^o. Mr. C. P. PARKER. — Roman Stoicism in the First Century. — The life and writings of Seneca. *Hf.* 3 hours. 2d half-year. 1 Ju., 2 R. Total 3.
- 59². Dr. GULICK. — The Mythology and Monuments of Ancient Corinth. — Pausanias (Book II). *Hf.* 3 hours. 2d half-year. 1 Gr. Total 1.
57. Professor WHITE. — The Private Life of the Greeks (second course). Investigation of the literary and monumental sources and study of special topics. 2 or 3 hours. 7 Gr., 1 Se., 1 Ju. Total 9.
60. Professor WRIGHT. — Painting in ancient Greece, with especial reference to vase-painting. — Lectures, practical exercises, reports, and theses. *Hf.* 1½ hours. 5 Gr., 1 Me., 2 R. Total 8.
55. Professor WHITE. — Disputed Questions in Athenian Topography. *Hf.* 1 hour. 4 Gr., 1 R. Total 5.

20. THE SEMINAR OF CLASSICAL PHILOLOGY.

Professor WRIGHT and Asst. Professor MORGAN, Directors for 1897-98. — Training in philological criticism and research. — Theocritus (with Herondas) and Horace (Odes). 3 hours. 11 Gr. Total 11.

English.

Primarily for Undergraduates:—

- A. Professors A. S. HILL and BRIGGS, and Messrs. HURLBUT, COPELAND, F. N. ROBINSON, COBB, SCHOFIELD, J. G. HART, LA ROSE, and SHEFFIELD. — Rhetoric and English Composition. — A. S. Hill's Rhetoric (revised and enlarged edition), and part of his Foundations of Rhetoric. — Lectures, recitations, written exercises, and conferences. 3 hours. 381 Fr., 3 So., 68 Sp., 134 Sc. Total 586.
- B. Mr. C. L. YOUNG. — Twelve Themes. — Lectures, and discussions of themes. *Hf.* 2 hours. 7 Ju., 43 So., 7 Fr., 5 Sp., 2 Sc. Total 64.
- C. Asst. Professor BAKER, and Messrs. T. HALL, H. L. PRESCOTT, and HUNTINGTON. — Forensics. — A brief based on a masterpiece of argumentative composition. — Three forensics, preceded by briefs. — Lectures, class-work, and conferences. *Hf.* 3 hours. 1 Gr., 55 Se., 298 Ju., 76 So., 2 Fr., 10 Sp., 9 Sc., 1 Me. Total 447.
- BC. Messrs. HURLBUT, T. HALL, and HUNTINGTON. — English composition. — Written exercises and conferences. *Hf.* 2 hours. 82 Sc. Total 82.

31. Messrs. GARDINER and LA ROSE. — English Composition. 2 hours.
3 Gr., 1 Se., 4 Ju., 49 So., 26 Fr., 12 Sp., 5 Sc., 1 Di., 1 Law. Total 102.
22. Asst. Professor GATES, and Messrs. ABBOTT, J. ALDEN, and H. H. CHAMBERLIN. — English Composition. 2 hours.
1 Se., 1 Ju., 231 So., 24 Fr., 19 Sp., 4 Sc., 1 Di. Total 281.
28. Professors A. S. HILL, BRIGGS, and KITTREDGE, Asst. Professor WENDELL, and Mr. J. G. HART. — English. — History and Development of English Literature in outline. *Hf.* 2 hours. 107 Fr., 17 Sp. Total 124.
30. Asst. Professor BAKER and Mr. HAYES. Forensics and Debating. 3 hours.
2 Gr., 3 Se., 26 Ju., 3 So., 1 Fr., 1 Sc. Total 36.
6. Professors TAUBIG and HART, Asst. Professors E. CUMMINGS and BAKER, and Mr. HAYES, assisted by Mr. H. L. PRESCOTT. — Oral Discussion of Topics in History and Economics. *Hf.* 2 hours.
3 Gr., 33 Se., 4 Law. Total 40.
10. Mr. HAYES. — Elocution. *Hf.* 2 hours.
1 Gr., 28 Se., 61 Ju., 14 So., 1 Fr., 5 Sp., 3 Sc., 1 Law. Total 114.
- 8¹. Dr. F. N. ROBINSON. — Anglo-Saxon. — Bright's Anglo-Saxon Reader. *Hf.* 3 hours. 1st half-year. 12 Gr., 4 Se., 2 Ju., 1 So. Total 19.

For Undergraduates and Graduates: —

1. Drs. GARRETT and F. N. ROBINSON. — English Literature. — Chaucer. 3 hours. 15 Gr., 9 Se., 7 Ju., 2 So., 1 Sp., 1 Sc. Total 35.
2. Professor KITTREDGE. — English Literature. — Shakspeare (six plays). 3 hours. 20 Gr., 31 Se., 28 Ju., 23 So., 6 Sp., 1 Law. Total 109.
- 11¹. Dr. GARRETT. — English Literature. — Bacon. *Hf.* 3 hours. 1st half-year. 1 Gr., 14 Se., 5 Ju., 4 So., 1 Sp. Total 25.
- 11². Dr. GARRETT. — English Literature. — Milton. *Hf.* 3 hours. 2d half-year. 3 Gr., 16 Se., 19 Ju., 24 So., 3 Fr., 3 Sp., 1 Law. Total 69.
- 15³. Professor BRIGGS and Mr. C. L. YOUNG. — English Literature. — From the Closing of the Theatres to the Death of Dryden (1642-1700). *Hf.* 2 hours. 2d half-year. 11 Gr., 23 Se., 17 Ju., 26 So., 2 Fr., 9 Sp., 2 Sc. Total 90.
- 8¹. Asst. Professor WENDELL. — English Literature. — From the publication of the Lyrical Ballads to the Death of Scott (1798-1832). *Hf.* 2 hours. 1st half-year. 18 Gr., 113 Se., 125 Ju., 94 So., 5 Fr., 31 Sp., 4 Sc., 1 Law. Total 391.
- 8². Asst. Professor GATES. — English Literature. — From the Death of Scott to the Death of Tennyson (1832-1892). *Hf.* 2 hours. 2d half-year. 21 Gr., 93 Se., 119 Ju., 108 So., 7 Fr., 28 Sp., 5 Sc. Total 376.
12. Professor ARLO BATES (Mass. Inst. of Technology) and Asst. Professor WENDELL. — English Composition. 2 hours. 5 Gr., 11 Se., 15 Ju., 2 So., 6 Sp., 1 Sc., 1 Di. Total 41.

Primarily for Graduates: —

- 19². Professor KITTREDGE. — Historical English Grammar. *Hf.* 3 hours. 2d half-year. 1 Gr. Total 1.

- 8³. Dr. GARRETT. — Anglo-Saxon. — *Béowulf*. *Hf.* 8 hours. 2d half-year.
16 Gr., 1 Se., 1 Ju. Total 18.
- 25². Professor KITTREDGE. — Anglo-Saxon. — *Cædmon*. — *Cynewulf*. *Hf.*
8 hours. 2d half-year. 6 Gr. Total 6.
- 26². Dr. GARRETT. — Langland and Gower. *Hf.* 8 hours. 2d half-year.
2 Gr. Total 2.
- 17¹. Mr. FLETCHER. — English Literature of the Fifteenth and Sixteenth Centuries in relation to Italian and Spanish Literature of the Fifteenth and Sixteenth Centuries. *Hf.* 8 hours. 1st half-year.
6 Gr., 2 Se., 1 Ju. Total 9.
- 27¹. Professor KITTREDGE. — The English and Scottish Popular Ballads. *Hf.*
8 hours. 1st half-year. 6 Gr. Total 6.
13. Asst. Professor GATES. — Literary Criticism in England since the Sixteenth Century. *Hf.* 1 hour. 10 Gr., 2 Se., 2 Ju., 1 So. Total 15.
14. Asst. Professor WENDELL. — English Literature. — The Drama from the Miracle Plays to the Closing of the Theatres. *Hf.* 1 hour.
12 Gr., 5 Se., 5 Ju. Total 22.
- 9². Mr. FLETCHER. — English Literature. — Spenser. *Hf.* 8 hours. 2d half-year.
8 Gr., 2 Se., 3 Ju. Total 13.
- 24¹. Professor A. S. HILL. — The Poetry of Wordsworth, Coleridge, Tennyson, and Browning. *Hf.* 8 hours. 1st half-year.
16 Gr., 11 Se., 5 Ju., 1 So. Total 33.
5. Professor A. S. HILL. — English Composition (advanced course). 8 hours.
10 Gr., 8 Se., 1 Ju. Total 19.

COURSES OF RESEARCH.

- 20b. Mr. FLETCHER. — English Literature in its relation to Italian Literature in the Sixteenth Century. 1 Se. Total 1.
- 20c. Asst. Professor WENDELL. — Literary History of America. 3 Gr. Total 3.

German.

Primarily for Undergraduates: —

- A. Mr. NICHOLS, Dr. BIERWIRTH, and Messrs. W. G. HOWARD, WALK, COAR, and BROOKS. — Elementary Course. — Grammar. — Translation from German into English, and elementary exercises in translating into German. 8 hours.
2 Gr., 5 Se., 3 Ju., 16 So., 179 Fr., 19 Sp., 104 Sc., 1 Di. Total 329.
- B. Dr. POLL. — Elementary Course. — Grammar. — Composition. — Translation and reading at sight. — Selections in Prose and Poetry. 5 hours.
1 Ju., 24 Fr., 13 Sp., 2 Di. Total 40.
- C. Messrs. W. G. HOWARD and COAR. — German Prose and Poetry. — Modern Narrative and Historical Prose. — Freytag (*Die Journalisten*). — Schiller (*Wilhelm Tell*). — Goethe (*Hermann und Dorothea*). — Reading at sight. — Grammar and Composition. 8 hours.
2 Ju., 14 So., 67 Fr., 9 Sp., 1 Sc. Total 93.

- 1a. Messrs. NICHOLS, W. G. HOWARD, and BROOKS. — German Prose and Poetry. — Lessing (Minna von Barnhelm). — Schiller (Die Jungfrau von Orleans). — Goethe (Iphigenie). — Reading at sight. — Grammar and Composition. 8 hours.
1 Gr., 1 Se., 2 Ju., 57 So., 16 Fr., 1 Sp., 3 Sc. Total 81.
- 1b. Associate Professor BARTLETT. — German Prose. — Subjects in History and Biography. — Reading at sight. 8 hours.
1 Gr., 1 Se., 2 Ju., 9 So., 4 Fr., 2 Sp., 4 Sc. Total 28.
- 1c. Dr. BIERWIRTH and Mr. WALZ. — German Prose. — Subjects in Natural Science. — Reading at sight. 8 hours.
1 Gr., 2 Se., 4 Ju., 10 So., 2 Fr., 2 Sp., 49 Sc. Total 70.
- E. Mr. NICHOLS. — German Grammar and practice in writing German (first course). *Hf.* 1½ hours. 3 Ju., 7 So., 4 Fr., 2 Sp. Total 16.
- F. Dr. BIERWIRTH. — German Grammar and practice in writing German (second course). *Hf.* 1½ hours.
1 Gr., 1 Se., 6 Ju., 4 So., 4 Fr., 1 Sp. Total 17.
- G. Dr. POLL. — German Grammar and practice in writing German (third course). *Hf.* 1 hour. 3 Se., 5 Ju., 2 So. Total 10.
- 2a. Associate Professor BARTLETT. — German Literature of the Eighteenth Century. — Selections from the works of Lessing, Goethe, and Schiller. — German Ballads and Lyrics. — Translation. — Reading at sight. — Composition. 8 hours. 1 Gr., 2 Se., 4 Ju., 16 So., 12 Fr., 2 Sp. Total 37.
2. Dr. POLL. — The German Drama of the Classic Period. — Lessing (Minna von Barnhelm, Emilia Galotti, Nathan der Weise). — Schiller (Maria Stuart, Die Jungfrau von Orleans, Wallensteins Tod.) — Goethe (Egmont, Faust.) — Lectures (in German). 8 hours.
3 Se., 14 Ju., 26 So., 15 Fr., 4 Sp. Total 62.
4. Professor FRANCKE. — Goethe and his Time. — Lessing (Emilia Galotti.) — Schiller (Wallenstein). — Goethe (Götz von Berlichingen, Egmont, Iphigenie, Tasso, Dichtung und Wahrheit, Faust). — Lectures (in German). 8 hours. 5 Se., 20 Ju., 25 So., 10 Fr., 3 Sp. Total 63.
6. Mr. NICHOLS. — German Prose (advanced course). — Essayists of the Nineteenth Century, *Hf.* 2 hours. 4 Se., 9 Ju., 5 So. Total 18.

GERMAN LITERATURE.

For Undergraduates and Graduates:—

5. Professor FRANCKE, assisted by Mr. J. F. COAR. — History of German Literature to the Nineteenth Century; with special study of the Classic Periods of the Twelfth and Eighteenth Centuries. — Lectures, reading, and English theses. 8 hours.
6 Gr., 7 Se., 12 Ju., 4 So., 1 Fr. Total 30.
- 5a². Mr. NICHOLS. — History of German Literature in the Nineteenth Century. — Lectures, with collateral reading. *Hf.* 8 hours. 2d half-year.
2 Gr., 4 Se., 4 Ju., 1 So. Total 11.

8. Asst. Professor VON JAGEMANN. — German Literature in the Twelfth and Thirteenth Centuries. — Nibelungenlied. — Kudrun. — Hartmann (Der arme Heinrich). — Wolfram (Parzival). — Walther von der Vogelweide. — Translation into Modern German. — Lectures and theses. 3 hours.
6 Gr., 5 Se., 1 Ju., 1 So. Total 13.
10. Dr. POLL. — German Literature from the Reformation to the Classic Period of the Eighteenth Century. — Lectures, reading, and theses. *Hf.* 1 hour. 3 Gr., 3 Se., 1 Ju., 1 So., 1 Sp. Total 9.
- 11¹. Professor FRANCKE. — The German Romantic Movement; with special reference to its social and political aspects. — The brothers Schlegel. — Tieck. — Novalis. — Arnim. *Hf.* 2 hours. 1st half-year.
7 Gr., 7 Se., 1 Ju., 2 So. Total 17.
- 11². Professor FRANCKE. — The German Romantic Movement; with special reference to its social and political aspects. — Kleist. — Uhland. — Hoffmann. — Heine. *Hf.* 2 hours. 2d half-year.
7 Gr., 6 Se., 1 Ju., 2 So. Total 16.

Germanic Philology.

Primarily for Graduates:—

- 12¹. Asst. Professor VON JAGEMANN. — Gothic. — Introduction to the study of Germanic Philology. *Hf.* 3 hours. 1st half-year.
11 Gr., 1 Se. Total 12.
13. Dr. SCHOFIELD. — Icelandic (Old Norse). — Selections from the Sagas and the Elder Edda. 3 hours. 4 Gr. Total 4.
21. Asst. Professor VON JAGEMANN. — History of the German Language. 3 hours. 5 Gr. Total 5.

SEMINARY COURSES IN GERMANIC LANGUAGES AND LITERATURES.

- 20a. Asst. Professor VON JAGEMANN. — Selected Topics in the History of the German Language. 1 Gr. Total 1.
- 20c. Professor FRANCKE. — Selected Topics in the History of the German Romantic Movement. 6 Gr. Total 6.

French.

Primarily for Undergraduates:—

- A. Messrs. C. H. C. WRIGHT, LA MESLÉE, and HENNING. — Elementary Course. — French Prose. — Composition. 3 hours.
6 Gr., 5 Se., 5 Ju., 3 So., 45 Fr., 19 Sp., 38 Sc., 1 Law, 1 Di. Total 123.
- 1b. Messrs. I. BABBITT and HENNING. — French Prose (historical and general). — Translation from French into English. 3 hours.
6 Ju., 8 So., 35 Fr., 8 Sp., 29 Sc. Total 86.
- 1c. Mr. LA MESLÉE. — Reading, translation, grammar, and composition. 3 hours. 3 Ju., 3 So., 19 Fr., 10 Sp. Total 35.
- 1a. Asst. Professor DE SUMICHRIST, and Mr. LA MESLÉE. — Reading, translation, grammar, and composition. 3 hours.
7 Ju., 21 So., 35 Fr., 7 Sp., 1 Sc. Total 71.

- 2c. Dr. MARCOU and Mr. CESTRE. — French Prose and Poetry. — Corneille. — Racine. — Molière. — Beaumarchais. — Alfred de Musset. — Balzac. — Composition. 3 hours.

1 Gr., 8 Se., 25 Ju., 38 So., 92 Fr., 9 Sp., 2 Sc. Total 175.

- 2a. Messrs. WRIGHT and BARBITT. — French Prose and Poetry. — La Fontaine. — Corneille. — Racine. — Molière. — Victor Hugo. — George Sand. — Taine. — Renan. — Composition. 3 hours.

4 Ju., 29 So., 47 Fr., 3 Sp., 4 Sc. Total 87.

3. Messrs. BRUN and LA MESLÉE. — Practice in speaking and writing French (elementary course). *Hf.* 2 hours.

13 Ju., 33 So., 35 Fr., 8 Sp. Total 89.

4. Mr. BRUN. — Practice in speaking and writing French (intermediate course). *Hf.* 2 hours.

3 Gr., 9 Se., 23 Ju., 29 So., 11 Fr., 3 Sp., 1 Law. Total 79.

5. Mr. BRUN. — Practice in speaking and writing French (advanced course). — Oral discussions. *Hf.* 2 hours.

1 Gr., 1 Se., 7 Ju., 9 So., 2 Fr., 1 Law. Total 21.

For Undergraduates and Graduates: —

- 6c. Professor GRANDOENT. — General view of French Literature. — Reading, recitations, lectures, composition. 3 hours.

2 Gr., 5 Se., 25 Ju., 25 So., 3 Fr., 3 Sp. Total 63.

6. Asst. Professor DE SUMICHEAST. — General view of French Literature. — Lectures, reading, themes, and collateral reading. 3 hours.

2 Gr., 5 Se., 7 Ju., 16 So., 1 Fr. Total 31.

13. Mr. C. H. C. WRIGHT. — The rise and growth of Classicism in French Literature. — Lectures, reading, and theses. 3 hours. 2 Gr., 4 Se. Total 6.

14. Dr. MARCOU. — French Lyric Poetry from Villon and the Fifteenth Century to the present time. — Lectures, reading of texts, and theses. 3 hours.

3 Gr., 2 Se., 4 Ju., 1 So., 1 Sp. Total 11.

- 7¹. Asst. Professor DE SUMICHEAST. — Victor Hugo and the Romanticist movement. — Lectures, themes, and collateral reading. *Hf.* 2 or 3 hours. 1st half-year.

3 Se., 6 Ju., 1 So., 2 Fr. Total 17.

- 7². Asst. Professor DE SUMICHEAST. — Victor Hugo and the reaction against the Romanticist movement. — Lectures, themes, and collateral reading. *Hf.* 2 or 3 hours. 2d half-year.

2 Gr., 5 Se., 3 Ju., 1 So., 2 Fr. Total 13.

9. Professor F. BÔCHER. — French Literature in the Seventeenth Century. — Lectures, themes, and collateral reading. 3 hours.

4 Gr., 11 Se., 3 Ju., 4 So. Total 22.

Primarily for Graduates: —

11. Dr. SCHOFIELD. — Old French Literature. — Rapid reading of texts with consideration of their literary relations. 2 or 3 hours. 4 Gr. Total 4.

16. Professor F. BÔCHER. — French Tragedy in the Sixteenth and Seventeenth Centuries. 2 hours. 3 Se., 1 Ju. Total 4.

Italian.*Primarily for Undergraduates:—*

1. Asst. Professor MARSH and Mr. SKINNER. — Elements of Grammar. — Selections from modern authors. — Elementary exercises in writing Italian. 3 hours. 14 Se., 7 Ju., 10 So., 11 Fr., 2 Sp. Total 44.

For Undergraduates and Graduates:—

2. Mr. FLETCHER. — Literature of the Fifteenth and Sixteenth Centuries. — Torquato Tasso. — Ariosto. — Benvenuto Cellini. — Leopardi. — Reading at sight. — Syntax and Prose Composition. 3 hours. 4 Gr., 1 Se., 3 Ju., 1 So., 1 Fr., 2 Sp. Total 12.

Primarily for Graduates:—

4. Professor NORTON. — Literature and the Fine Arts in Italy during the Middle Ages and the Renaissance, with special study of Dante. 2 or 3 hours. 3 Gr., 5 Se., 6 Ju., 2 Me. Total 16.

Spanish.*Primarily for Undergraduates:—*

1. Asst. Professor MARSH and Mr. SKINNER. — Grammar, reading, and composition. — Modern novels and plays. 3 hours. 1 Gr., 12 Se., 14 Ju., 19 So., 18 Fr., 1 Sp. Total 65.

For Undergraduates and Graduates:—

2. Dr. MARCOU. — Literature of the Sixteenth and Seventeenth Centuries. — Cervantes, Lope de Vega, Calderón. — Composition. 3 hours. 2 Gr., 3 Se., 6 Ju., 1 So., 1 Sp. Total 13.

Romance Philology.*Primarily for Graduates:—*

3. Professor GRANDGENT. — Old French. — Phonology and Inflections. — The oldest texts. — La Chanson de Roland. — Chrétien de Troyes. — Aucassin et Nicolette. 2 or 3 hours. 5 Gr., 3 R. Total 8.
4. Professor GRANDGENT — Provençal. — Language and Literature, with selections from the poetry of the Troubadours. 3 hours. 2 Gr., 1 Se., 1 Ju. Total 4.
- 2^d. Professor GRANDGENT and Asst. Professor VON JAGEMANN. — General Introduction to Linguistic Science. — Phonetics. — Lectures on the Principles of Change in Language. *Hf.* 3 hours. 2d half-year. 4 Gr. Total 4.

Comparative Literature.*For Undergraduates and Graduates:—*

2. Asst. Professor MARSH. — Mediæval Literature in the vulgar tongues, with especial reference to the influence of France and Provence. — Lectures and theses. 3 hours. 6 Gr., 3 Se. Total 9.

COURSES OF SPECIAL STUDY IN ROMANCE LANGUAGES AND LITERATURES.

Primarily for Graduates:—

- 20a. Professor F. BÖCHER. — The Comedies of Molière and those of his immediate predecessors, his contemporaries, and his immediate successors.
2 hours. 3 Gr., 1 Se. Total 4.
- 20c. Dr. MARCOU. — The syllabic value of contiguous vowels in French verse during the Fourteenth and Fifteenth Centuries. 2 Gr. Total 2.
- 20d. Professor GRANDGENT. — Studies in Old French Literature. 2 Gr. Total 2.
- 20e. Asst. Professor MARSH. — The Origin and Development of Historical Epic Poetry in Mediæval Europe. 3 hours. 2 Gr. Total 2.

Celtic.

Primarily for Graduates:—

1. Dr. F. N. ROBINSON. — Old and Middle Irish. — Grammar and interpretation of texts. — General introduction to Celtic Philology. — Lectures on the history of Celtic Literature. 3 hours. 2 Gr. Total 2.

Slavic Languages.

For Undergraduates and Graduates:—

1. Mr. WIENER. — Russian. — Grammar, reading, and composition. 3 hours.
1 Gr., 1 Se., 2 Ju. Total 4.
2. Mr. WIENER. — Polish. — Grammar, reading, and composition. 3 hours.
1 Gr. Total 1.

History.

Primarily for Undergraduates:—

1. Dr. COOLIDGE, assisted by Messrs. FAY, ALLEN, and ANDREW. — Mediæval and Modern European History (introductory course). 3 hours.
2 Ju., 48 So., 328 Fr., 58 Sp., 3 Se. Total 439.

For Undergraduates and Graduates:—

2. Dr. BOTSFORD. — Political History of Greece to the Roman Conquest.
3 hours. 2 Gr., 6 Se., 4 Ju., 4 So., 4 Fr., 1 Sp. Total 21.
5. Professor EMERTON. — The Mediæval Church. — Formation of National Churches in the Germanic States. — Establishment of the Mediæval Papacy and its development as the controlling force in European Life. — The Holy Roman Empire. 2 hours.
3 Gr., 2 Se., 1 Ju., 4 So., 1 Fr. Total 11.
6. Asst. Professor PLATNER. — History of the Early Church, with special reference to the Patristic Literature. 2 hours.
1 Se., 2 So., 5 Di. Total 8.
7. Professor EMERTON. — The Era of the Reformation in Europe from the rise of Italian Humanism to the close of the Council of Trent (1550-1563).
2 hours. 6 Gr., 5 Se., 1 Ju., 5 So., 1 Sp., 2 Di. Total 20.
21. Asst. Professor PLATNER. — History of the Church since the Reformation.
2 hours. 2 Gr., 1 Se., 1 Ju., 4 Di. Total 8.
8. Asst. Professor GROSS. — History of France to the reign of Francis I.
2 or 3 hours. 4 Gr., 3 Se., 9 Ju., 4 So., 1 Fr., 1 Sp. Total 22.

9. Asst. Professor GROSS. — Constitutional History of England to the Sixteenth Century. 3 hours.
5 Gr., 22 Se., 16 Ju., 7 So., 3 Sp., 1 Law. Total 54.
11. Professor CHANNING. — History of England during the Tudor and Stuart Periods. 3 hours. 10 Gr., 18 Se., 9 Ju., 5 So., 2 Law. Total 44.
- 12¹. Professor MACVANE. — Constitutional History of England since the reign of George II. *Hf.* 3 hours. 1st half-year.
5 Gr., 24 Se., 28 Ju., 43 So., 3 Fr., 3 Sp., 1 Me. Total 107.
- 12². Professor MACVANE. — History of Continental Europe since the Middle of the Eighteenth Century. *Hf.* 3 hours. 2d half-year.
7 Gr., 22 Se., 47 Ju., 73 So., 8 Fr., 12 Sp., 2 Sc. Total 171.
- 13¹. Dr. COOLIDGE. — The Eastern Question. *Hf.* 3 hours. 1st half-year.
1 Gr., 32 Se., 10 Ju., 1 So., 2 Sp., 2 Law. Total 48.
10. Professor CHANNING, assisted by Mr. BELL. — American History (to 1783). 3 hours. 2 Gr., 20 Se., 33 Ju., 98 So., 8 Fr., 8 Sp. Total 169.
13. Professor HART, assisted by Messrs. LEARNED and WHITE. — Constitutional and Political History of the United States (1783-1865). 3 hours.
5 Gr., 56 Se., 99 Ju., 37 So., 11 Sp., 2 Sc. Total 210.
14. Professor HART. — History of American Diplomacy: Treaties; application of International Law; Foreign Policy. 3 hours.
6 Gr., 8 Se., 1 Ju., 2 So., 1 Sp., 1 Law. Total 19.

Primarily for Graduates: —

18. Dr. BOTSFORD. — Constitutional History of the Roman Republic to the Social War. 2 or 3 hours. 5 Gr., 1 Se., 3 R. Total 9.
22. Asst. Professor GROSS. — The Sources and Literature of English Constitutional History. *Hf.* 1 hour. 1 Gr. Total 1.
- 25². Mr. SULLIVAN. — The Elements of Latin Palaeography, with reference to the use of historical sources. *Hf.* 3 hours. 2d half-year.
3 Gr. Total 3.

SEMINARY COURSES IN HISTORY AND GOVERNMENT.

- 20b. Asst. Professor GROSS. — English Institutions in the Middle Ages. 2 Gr. Total 2.
- 20c. Professor MACVANE. — Recent Constitutional History. 1 hour. 2 Gr., 2 Se., 1 R. Total 5.
- 20d. Dr. COOLIDGE. — Recent Diplomatic History of Europe. 1 Gr. Total 1.
- 20e. Professors CHANNING and HART. — American History and Institutions. 1 hour. 17 Gr. Total 17.

Government.

Primarily for Undergraduates: —

- 1¹. Professor MACVANE, assisted by Mr. SEAMAN. — Constitutional Government (elementary course). *Hf.* 3 hours. 1st half-year.
1 Se., 35 Ju., 111 So., 166 Fr., 38 Sp., 2 Sc. Total 353.

For Undergraduates and Graduates:—

4. Professor MACVANE, assisted by Mr. BROWLOW. — Elements of International Law, and the History of European Diplomacy since the Seven Years' War. 3 hours. 7 Gr., 41 Se., 13 Ju., 1 So., 2 Sp. Total 64.
- 7^a. Professor MACVANE, assisted by Mr. SEAMAN. — Leading Principles of Constitutional Law: selected cases, American and English. *Hf.* 3 hours. 2d half-year. 1 Gr., 8 Se., 18 Ju., 12 So., 9 Fr., 10 Sp., 2 Law. Total 60.
- 9¹. Mr. SULLIVAN. — Theories of the State in the Middle Ages. *Hf.* 3 hours. 1st half-year. 1 Gr., 1 Se., 1 So. Total 3.

Primarily for Graduates:—

5. Asst. Professor WILLIAMS. — The Roman Law. — Selected Topics. 2 hours. 6 Se., 1 Ju., 1 So. Total 8.
10. Professor MACVANE. — Modern Governments. — Studies in existing Political Systems and in the Influence of Political Parties. 2 hours. 8 Gr., 4 Se., 1 Sp., 2 Law, 5 R. Total 20.
11. Professor CHANNING. — History of Political Theories, with especial reference to the Origin of American Institutions. — Studies from Machiavelli, Calvin, Hobbes, the Puritan State Papers, Winthrop, Locke, Rousseau, Otis, Jefferson, Madison, and others. 1 hour 6 Gr. Total 6.
14. Professor J. B. THAYER. — Constitutional Law 2 hours. 3 Gr. Total 3.
- 15¹. Professor BEALE. — International Law (advanced course). *Hf.* 2 or 3 hours. 1st half-year. 1 Gr., 1 Ju. Total 2.

Economics.*Primarily for Undergraduates:—*

1. Professor TAUSSIG, Asst. Professor E. CUMMINGS, Dr. J. CUMMINGS, and Messrs. GRIFFIN, MIXTER, and WARREN. — Outlines of Economics. — Principles of Political Economy. — Lectures on Economic Development, Social Questions, and Financial Legislation. 3 hours. 32 Se., 99 Ju., 199 So., 14 Fr., 29 Sp., 5 Sc., 3 Law. Total 381.

For Undergraduates and Graduates:—

15. Professor ASHLEY. — The History and Literature of Economics to the Middle of the Nineteenth Century. 2 or 3 hours. 3 Gr., 1 Se., 2 So. Total 6.
2. Professor TAUSSIG. — Economic Theory in the Nineteenth Century. 3 hours. 9 Gr., 9 Se., 11 Ju., 3 So. Total 32.
- 13^a. Professor ASHLEY. — Scope and Method in Economic Theory and Investigation. *Hf.* 3 hours. 2d half-year. 3 Gr., 1 Se., 1 So. Total 5
8. Asst. Professor E. CUMMINGS. — The Principles of Sociology. — Development of the Modern State, and of its Social Functions. 2 or 3 hours. 4 Gr., 30 Se., 13 Ju., 6 So., 2 Sp., 1 Di., 3 Law. Total 53.
11. Professor ASHLEY. — The Modern Economic History of Europe and America (from 1800). 2 or 3 hours. 9 Gr., 5 Se., 1 Ju., 1 So. Total 16.

6. Dr. CALLENDER. — The Economic History of the United States. 3 hours.
4 Gr., 38 Se., 41 Ju., 8 So., 1 Fr., 2 Sp. Total 94.
14. Asst. Professor E. CUMMINGS. — Communism and Socialism. — History and Literature. 2 or 3 hours. 8 Gr., 5 Se., 2 Ju., 2 So. Total 12.
9. Asst. Professor E. CUMMINGS and Dr. J. CUMMINGS. — The Labor Question in Europe and the United States. — The Social and Economic Condition of Workingmen. 3 hours.
1 Gr., 39 Se., 51 Ju., 12 So., 4 Sp., 1 Sc. Total 108.
4. Dr. J. CUMMINGS. — Statistics. — Applications to Economic and Social Questions. — Studies in the Movement of Population. — Theory and Method. 3 hours. 7 Se., 7 Ju., 3 So., 1 Sp. Total 18.
- 5². Mr. MEYER. — Public Works, Railways, Postal and Telegraph Service, and Monopolized Industries, under Corporate and Public Management. *Hf.* 3 hours. 2d half-year.
31 Se., 16 Ju., 8 So., 7 Sp., 2 Sc., 1 Law. Total 65.
- 16². Professor DUNBAR. — Selected Topics in the Financial History of the United States. *Hf.* 2 hours. 2d half-year.
3 Gr., 3 Se., 2 Ju. Total 8.
- 7¹. Professor TAUSSIG. — The Theory and Methods of Taxation, with special reference to Local Taxation in the United States. *Hf.* 2 or 3 hours. 1st half-year. 5 Gr., 27 Se., 9 Ju., 1 So. Total 49.
- 12¹. Professor DUNBAR. — Banking and the History of the leading Banking Systems. *Hf.* 3 hours. 1st half-year.
5 Gr., 4 Se., 2 Ju., 1 Sp. Total 12.

Primarily for Graduates: —

THE SEMINARY IN ECONOMICS.

20. Professors DUNBAR, TAUSSIG and ASHLEY, and Asst. Professor EDWARD CUMMINGS. — Investigation of topics assigned after consultation.
11 Gr., 1 Se. Total 12.

Philosophy.

Primarily for Undergraduates: —

- 1a. Professors PALMER and MÜNSTERBERG, assisted by Dr. RAND. — General Introduction to Philosophy. — Logic. — Psychology. 3 hours.
1 Gr., 37 Se., 157 Ju., 95 So., 10 Fr., 20 Sp., 12 Sc., 1 Di. Total 333.
- 1b. Professor ROYCK, assisted by Dr. RAND. — Outlines of the History of Philosophy, and Introduction to the Study of the Problems of Philosophical Theory. 3 hours.
1 Gr., 21 Se., 88 Ju., 20 So., 3 Fr., 10 Sp., 1 Di. Total 94.

For Undergraduates and Graduates: —

- 2¹. Professor MÜNSTERBERG. — Advanced Psychology. — Lectures, prescribed readings, and a thesis. *Hf.* 3 hours. 1st half-year.
12 Gr., 9 Se., 10 Ju., 1 Sp. Total 32.

- 14¹. Professor MÜNSTERBERG.—Experimental Psychology (elementary laboratory course).—The psychology of sensation and of the elementary mental processes. *Hf.* 2 hours and laboratory work. 1st half-year.
8 Gr., 4 Se., 1 Ju., 1 So., 1 Fr., 2 Sp., 1 Sc., 1 Di. Total 19.
- 14². Mr. LOUGH.—Experimental Psychology (advanced course).—Systematic exercises in the technique and use of instruments employed in research work. *Hf.* 1 hour and laboratory work. 2d half-year.
7 Gr., 1 Se., 2 Ju., 1 Fr., 1 Sp., 1 Sc. Total 13.
3. Professor JAMES.—The Philosophy of Nature, with especial reference to Man's place in Nature.—Lectures and theses. 3 hours.
9 Gr., 10 Se., 12 Ju., 2 Sp., 1 Di. Total 34.
4. Professor PALMER.—Ethics.—The Theory of Morals, considered constructively.—Lectures, theses, and private reading. 3 hours.
4 Gr., 25 Se., 14 Ju., 2 So., 1 Fr., 4 Sp., 3 Di. Total 58.
5. Professor PEABODY, assisted by Dr. RAND.—The Ethics of the Social Questions.—The problems of Poor-Relief, the Family, Temperance, and various phases of the Labor Question in the light of ethical theory.—Lectures, special researches, and prescribed reading. 3 hours.
5 Gr., 65 Se., 19 Ju., 9 So., 1 Fr., 1 Sp., 10 Di., 1 Law. Total 111.
6. Professor EVERETT.—The Psychological Elements of Religious Faith.—Lectures. *Hf.* 1 hour. 6 Gr., 6 Se., 4 Ju., 3 Sp., 13 Di. Total 32.
7. Professor EVERETT.—Theism and the Special Contents of Christian Faith.—Lectures and a thesis. 3 hours. 1 Gr., 2 Se., 12 Di. Total 15.
9. Professor ROYCE.—Metaphysics.—The fundamental problems of Theoretical Philosophy, considered constructively.—The Definitions of Reality.—The Problem of Knowledge.—Realism and Idealism.—The Problems of Nature, Freedom, Teleology, and Theism.—Theses. 3 hours.
5 Gr., 5 Se., 5 Ju., 1 So., 3 Di. Total 19.
12. Dr. SANTAYANA.—Greek Philosophy, with especial reference to Plato.—Lectures, theses, and private reading. 3 hours.
2 Gr., 2 Se., 7 Ju. Total 11.
- 11¹. Dr. SANTAYANA.—Descartes, Spinoza, and Leibnitz.—Lectures, recitations, and prescribed reading. *Hf.* 3 hours. 1st half-year.
4 Gr., 7 Se., 3 Ju., 1 So., 1 Fr., 1 Sp. Total 17.
- 11². Dr. SANTAYANA.—The History of English Philosophy from Locke to Hume.—Lectures, prescribed reading, and theses. *Hf.* 3 hours. 2d half-year.
7 Gr., 10 Se., 14 Ju., 3 So., 2 Fr., 3 Sp., 1 Di., 1 Law. Total 41.
13. Professor EVERETT.—The Comparative Study of Religion.—Studies in the Comparative History of Religions, particularly the Vedic Religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese Religions. *Hf.* 2 hours.
7 Gr., 7 Se., 4 Ju., 1 Sp., 9 Di. Total 28.
- 8¹. Professor JAMES.—The Philosophy of Kant.—Special reports and lectures. *Hf.* 3 hours. 1st half-year.
2 Gr., 2 Se., 1 Sp., 1 Di. Total 6.

Primarily for Graduates. —

- 20a. Professor MÜNSTERBERG and Mr. LOUGH. — Psychological Laboratory. — Experimental investigations by advanced students. 10 Gr., 2 R. Total 12.
- 20b. Professor JAMES. — Psychological Seminary. — Subject for the year: The Philosophical Problems of Psychology. 2 hours.
10 Gr., 2 Di., 2 R. Total 14.
- 20c. Professor ROYCE. — Metaphysical Seminary. — Subject for the year: The Development of the Hegelian System. 2 hours.
7 Gr., 3 Di., 2 R. Total 12.
- 20d. Professor PALMER. — Ethical Seminary. — Subject for the year: The Historical Development of Ethical Thought in England. 2 hours.
7 Gr., 3 Di., 1 Me., 1 R. Total 12.
- 20e. Professor PRABODY. — Sociological Seminary. — Subject for the year: The Christian Doctrine of the Social Order. 2 hours.
4 Gr., 6 Di. Total 10.

COURSES IN EDUCATION AND TEACHING.

For Undergraduates and Graduates: —

16. Mr. LOCKE. — The History of Educational Theories and Practices. — Lectures, discussions, and reports. — Two essays. 2 hours.
4 Gr., 5 Se., 1 So., 3 Sc. Total 13.
18. Mr. LOCKE. — Introduction to Educational Theory. — Discussion of Educational Principles. — Lectures, reports, and discussions. — One essay. Hf. 1 hour.
4 Gr., 13 Se., 5 Ju., 2 Sc. Total 24.
- 19a. Asst. Professor HANUS and Mr. LOCKE. — Methods of Teaching Mathematics, Physics, Chemistry, Physiography and Meteorology, Botany and Zoology, Physiology, in Elementary and Secondary Schools. About ten exercises in each subject. One thesis on the work of the whole course. Hf. 2 hours.
3 Gr., 2 Se., 1 Sc., 3 R. Total 9.

Primarily for Graduates: —

17. Mr. DUTTON and Dr. HULING. — Organization and Management of Public Schools and Academies. — Supervision, Courses of Study, and Instruction. — Lectures, discussions, and reports. 2 hours.
15 Gr., 2 Se., 1 So., 1 Fr., 2 Sc., 9 R. Total 30.

The Fine Arts.

Primarily for Undergraduates: —

1. Professor MOORE, assisted by Mr. MOWER. — Principles of Delineation, Color, and Chiaroscuro, with some considerations of historic forms of art, and the conditions which have influenced them. — Lectures (once a week), with collateral reading. — Practice in drawing and in the use of water-colors. — Perspective. 3 hours.
6 Se., 2 Ju., 14 So., 16 Fr., 2 Sp., 34 Sc. Total 74.
2. Professor MOORE. — Principles of Design in Painting, Sculpture, and Architecture, as exemplified in the arts of past ages. — Lectures (twice a week), with collateral reading. — Practice in drawing. 3 hours.
1 Sc., 2 Ju., 2 So., 2 Sc. Total 7.

For Undergraduates and Graduates:—

3. Professor NORTON. — Ancient Art. 3 hours.

5 Gr., 111 Se., 153 Ju., 124 So., 16 Fr., 14 Sp., 27 Sc., 1 Me. Total 451.

Architecture.

The courses in Architecture are intended primarily for students in the Lawrence Scientific School, and only Course Ia may be counted towards the degree of A.B.

Ia. Asst. Professor WARREN. — Technical and Historical Development of the Ancient Styles, with especial reference to Classic Architecture. Lectures and practice in the drawing room. 2 or 3 hours.

1 Gr., 1 Se., 3 Ju., 2 So., 19 Sc. Total 25.

Ic. Asst. Professor WARREN. — Technical and Historical Development of Renaissance and Modern Architecture. 2 or 3 hours.

1 Gr., 3 Se., 2 Ju., 1 So., 25 Sc. Total 32.

2a. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Elementary Architectural Drawing. 3 hours.

1 Gr., 13 Sc. Total 14.

3a. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Free-hand Drawing from Architectural Subjects. 6 hours.

1 Ju., 11 Sc. Total 12.

3b. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Free-hand Drawing from Architectural Subjects (second course). 6 hours.

8 Sc. Total 8.

3c¹. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Free-hand Drawing from Architectural Subjects (third course). *Hf.* 6 hours. 1st half-year.

13 Sc. Total 13.

4a. Asst. Professor WARREN and Mr. NEWTON. — Elementary Architectural Design. Lectures and practice. 4 hours.

1 Ju., 10 Sc. Total 11.

4b. Asst. Professor WARREN and Mr. NEWTON, assisted by Mr. SWAN. — Architectural Design (second course). 4 hours.

10 Sc. Total 10.

4c. Asst. Professor WARREN and Mr. NEWTON. — Architectural Design (advanced course).

11 Sc. Total 11.

5¹. Mr. NEWTON. — Building Construction: Carpentry. — Lectures and drawing. *Hf.* 2 hours. 1st half-year.

15 Sc. Total 15.

6. Mr. GARBUTT. — Modelling. — Practice in modelling architectural ornament in clay. *Hf.* 3 hours.

1 Sp., 10 Sc. Total 11.

Music.*For Undergraduates and Graduates:—*

1. Mr. SPALDING. — Harmony. 2½ hours.

2 Se., 3 Ju., 11 So., 11 Fr. Total 27.

2. Mr. SPALDING. — Counterpoint. 2 hours.

2 Ju., 6 So., 1 Sp. Total 9.

3. Professor PAINE. — History of Music, with analysis of the works of the great masters. *Hf.* 1 or 2 hours. 4 Se., 4 Ju. Total 8.

8. Professor PAINE. — Chamber Music of Beethoven and other masters, with analysis of their principal works. — Lectures. — Ten illustrative concerts. 2 hours. 12 Se., 6 Ju., 4 So., 1 Fr., 1 Sp. Total 24.

Primarily for Graduates : —

5. Professor PAINE. — Canon and Fugue. — Free Thematic Music. 2 hours. 1 Se., 1 Ju., 1 So. Total 3.

6. Professor PAINE. — Advanced Canon and Fugue and Free Composition. 2 hours. 1 Gr., 3 Se. Total 4.

Mathematics.

Primarily for Undergraduates : —

A¹. Dr. SAFFORD. — Logarithms. — Plane and Spherical Trigonometry. *Hf.* 3 hours. 1st half-year.

2 Se., 3 Ju., 9 So., 25 Fr., 7 Sp., 3 Sc. Total 49.

B². Dr. SAFFORD. — Plane Analytic Geometry (elementary course). *Hf.* 3 hours. 2d half-year. 1 Se., 2 Ju., 2 So., 22 Fr., 2 Sp., 8 Sc. Total 37.

C. Mr. ASHTON. — Plane and Solid Analytic Geometry (extended course). 3 hours. 4 So., 5 Fr., 2 Sp., 2 Sc. Total 13.

D¹. Dr. SAFFORD. — Algebra. *Hf.* 3 hours. 1st half-year.

2 Ju., 6 So., 23 Fr., 6 Sp., 3 Sc. Total 40.

E². Dr. SAFFORD. — Solid Geometry. *Hf.* 3 hours. 2d half-year.

1 Se., 3 Ju., 13 So., 44 Fr., 9 Sp., 26 Sc., 1 Law. Total 97.

F. Mr. ASHTON and Dr. SAFFORD. — Trigonometry and Plane Analytic Geometry. 3 hours. 2 Ju., 7 So., 23 Fr., 3 Sp., 1 Sc. Total 46.

2. Professor BYERLY, assisted by Mr. ASHTON. — Differential and Integral Calculus (first course). 3 hours.

9 Ju., 21 So., 3 Fr., 3 Sp., 4 Sc. Total 40.

4. Asst. Professor OSGOOD. — The Elements of Mechanics. 3 hours.

1 Gr., 3 Se., 7 Ju., 1 So., 1 Sc. Total 13.

For Undergraduates and Graduates : —

1¹. Asst. Professor M. BÖCHER. — Theory of Equations. — Invariants. *Hf.* 3 hours. 1st half-year. 4 Gr., 1 Se., 3 Ju., 1 So., 1 Sc. Total 10.

3. Professor BYERLY. — Modern Methods in Geometry. — Determinants. 3 hours. 2 Gr., 4 Se., 1 Ju., 2 So., 1 Sp. Total 10.

5. Asst. Professor OSGOOD. — Differential and Integral Calculus (second course). 3 hours. 4 Gr., 2 Se., 11 Ju., 1 So. Total 18.

6. Professor J. M. PRINCE. — Quaternions, with applications to Geometry and Mechanics (first course). 3 hours.

5 Gr., 3 Se., 4 Ju., 1 So., 1 Sc. Total 14.

12¹. Asst. Professor OSGOOD. — Infinite Series and Products. *Hf.* 3 hours. 1st half-year. 3 Gr. Total 3.

Primarily for Graduates:—

- 7b. Professor J. M. PEIRCE. — Theory of Curves and Surfaces (second course): General Theory of Surfaces; Surfaces of the First and Second Degrees. 3 hours. 1 So. Total 1.
10. Professors BYERLY and B. O. PEIRCE. — Trigonometric Series. — Introduction to Spherical Harmonics. — Potential Function. 3 hours. 9 Gr., 2 Se. Total 11.
13. Asst. Professor M. BÔCHER. — The Theory of Functions (introductory course). 3 hours. 3 Gr., 2 Se., 1 So. Total 6.
11. Professor B. O. PEIRCE. — Hydrostatics. — Hydrokinematics. — Force Functions and Velocity-Potential Functions and their uses. 2 or 3 hours. 10 Gr., 1 Se. Total 11.
- 17^a. Asst. Professor OSGOOD. — The Theory of Functions (second course). — Elliptic Integrals and Elliptic Functions. *Hf.* 3 hours. 2½ half-year. 3 Gr. Total 3.
19. Asst. Professor M. BÔCHER. — Functions defined by Linear Differential Equations. 3 hours. 4 Gr. Total 4.
25. Professor ASAPH HALL (U. S. Navy). — The Theory of Planetary Motions. 3 hours. 1 Gr., 1 Se. Total 2.

Astronomy.*Primarily for Undergraduates:—*

- 1^b. Dr. WILLSON and Mr. REED. — Descriptive Astronomy. *Hf.* 3 hours. 1st half-year. 42 Se., 13 Ju., 15 So., 2 Fr., 2 Sp., 4 Sc., 1 Law, 1 Me. Total 80.

For Undergraduates and Graduates:—

3. Dr. WILLSON — Practical Astronomy. — Portable and fixed instruments. — Time and longitude by transit. — Latitude by zenith telescope. — Meridian circle; equatorial instrument. — Lectures, use of instruments, and computation. 3 hours. 4 Gr., 3 Ju., 1 So. Total 8.

Engineering.

The courses in Engineering are intended primarily for students in the Lawrence Scientific School, and only a few of them can ordinarily be counted towards the degree of A.B. The Catalogue shows in detail what courses may be so counted.

- 1a¹. Messrs. LOVE, ASHTON, SAFFORD, FRIZELL, and CAMPBELL. — Engineering Mathematics. — Algebra. *Hf.* 3 hours. 1st half-year. 1 Ju., 3 So., 10 Fr., 110 Sc. Total 124.
- 1b¹. Messrs. LOVE, ASHTON, FRIZELL, and CAMPBELL. — Engineering Mathematics. — Trigonometry. *Hf.* 2 hours. 1st half-year. 2 Ju., 1 So., 1 Fr., 105 Sc. Total 109.
- 1d². Messrs. LOVE, ASHTON, SAFFORD, and FRIZELL. — Engineering Mathematics. — Analytic Geometry. *Hf.* 3 hours. 2½ half-year. 3 So., 2 Fr., 90 Sc. Total 95.

- 1c. Messrs. LOVE, FRIZELL, and CAMPBELL. — Engineering Mathematics. — Solid Analytic Geometry. — Differential and Integral Calculus. 2 or 3 hours. 2 Ju., 1 So., 61 Sc. Total 64.
- 1f¹. Mr. LOVE. — Engineering Mathematics. — Differential and Integral Calculus (second course). *Hf.* 3 hours. 1st half-year. 10 Sc. Total 10.
- 2a. Messrs. MOSES, OSBORN, and M. H. WRIGHT. — Mechanical Drawing. — Use of Instruments. — Projections and Machine Drawing. — Lectures (1 hour) and draughting (6 hours). 4 Ju., 4 So., 8 Fr., 74 Sc. Total 90.
- 2b¹. Messrs. MOSES and OSBORN. — Descriptive Geometry. — Elementary Shades, Shadows, and Perspective. — Lectures (1 hour) and draughting (6 hours). *Hf.* 1st half-year. 1 Ju., 9 Sc. Total 13.
- 2c¹. Mr. MOSES. — Structural and Machine Drawing. — Applications of Descriptive Geometry to Engineering Constructions and Machinery. — Lectures (1 hour) and draughting (6 hours). *Hf.* 1st half-year. 1 Ju., 3 So., 49 Sc. Total 53.
- 2d². Mr. MOSES. — Mechanism. — Study of gearing and mechanical movements. — Lectures (3 hours) and draughting (4 hours). *Hf.* 2d half-year. 2 So., 36 Sc. Total 38.
- 3e². Messrs. MOSES and OSBORN. — Stereotomy, Shades, Shadows, and Perspective. — Lectures (1 hour) and draughting (6 hours). *Hf.* 2d half-year. 1 So., 11 Sc. Total 12.
- 4a. Messrs. TURNER and BUTLER. — Surveying, Plotting, and Topographical Drawing. — Levelling. — Field practice. 6 hours. 3 Ju., 1 So., 31 Sc. Total 35.
- 4e². Messrs. TURNER and BUTLER, and Dr. WILLSON. — Geodetic and Mining Surveying. — The use of astronomical instruments in Surveying and Navigation. *Hf.* 6 or 7 hours. 2d half-year. 7 Sc. Total 7.
- 4d³. Messrs. TURNER and BUTLER. — Railroad Engineering. — Survey, Location, and Construction of Railroads. — Field practice. *Hf.* 6 hours. 1st half-year. 9 Sc. Total 9.
- 10a. Mr. BURKE. — Shopwork in Metals. — Use of tools. — Fitting by hand. — Study of the metals in practical working. — Lectures and laboratory work. *Hf.* 6 hours. 1st or 2d half-year. 31 Sc. Total 31.
- 10b. Mr. BURKE. — Blacksmithing. — Use of tools. — Forging, welding, tool dressing and tempering. — Lectures and laboratory work. *Hf.* 6 hours. 1st or 2d half-year. 28 Sc. Total 28.
- 10c. Mr. BURKE. — Shopwork in Wood. — Use of tools. — Pattern-making and turning. — Lectures and laboratory work. *Hf.* 6 hours. 1st or 2d half-year. 1 So., 38 Sc. Total 39.
- 10e. Mr. BURKE. — Machine Shop Practice. — Use of machine tools. — Construction of parts of machinery; finishing and assembling parts. — Lectures and laboratory work. *Hf.* 6 to 9 hours. 1st or 2d half-year. 1 So., 38 Sc. Total 39.

For Undergraduates and Graduates:—

- 4c³. Mr. MCCLINTOCK.—Construction and Maintenance of Common Roads.
Hf. 8 hours. 2d half-year. 3 Gr., 8 Sc. Total 11.
- 5a. Professor HOLLIS and Mr. PRUGGER.—Analytic and Applied Mechanics.
—Problems in Statics and Kinetics. 8 hours.
1 Gr., 1 Se., 30 Sc. Total 32
- 5b. Asst. Professor JOHNSON.—Elementary Statics.—Graphical and Analytical
Methods.—Designing of simple structures. Hf. 8 hours.
8 Sc. Total 8.
- 5c¹. Professor HOLLIS.—Resistance of Materials. Hf. 8 hours. 1st half-
year. 2 Gr., 1 Se., 11 Sc. Total 14.
- 6a². Messrs. TURNER and BUTLER.—Hydraulics and Hydraulic Motors.—
Flow of water in pipes.—Water wheels, turbines, and pressure engines.
Hf. 8 hours. 2d half-year. 1 Gr., 1 Se., 26 Sc. Total 28.
- 6c². Mr. RICE.—Water Supply and Sanitary Engineering. Hf. 8 hours.
2d half-year. 13 Sc. Total 13.
- 6d¹. Mr. TURNER.—Canals, Rivers, and Irrigation.—Measurements of the
flow of water.—Construction of irrigation works. Hf. 8 hours. 1st
half-year. 9 Sc. Total 9.
- 7a. Asst. Professor JOHNSON.—Bridges and Buildings.—Graphical Statics.—
Details of iron and steel construction.—Lectures and draughting. 9 hours.
1 Gr., 7 Sc. Total 8.
- 8a². Asst. Professor JOHNSON.—Masonry and Foundations. Hf. 8 hours.
2d half-year. 1 Gr., 25 Sc. Total 26.
- 11a. Messrs. L. S. MARKS and BURKE.—Machinery and Boilers.—Description
of the different types of Engines and Boilers. 8 hours, and one afternoon
for visits of inspection. 1 Gr., 1 Se., 41 Sc. Total 43.
- 11b². Mr. L. S. MARKS.—Steam-Engine and Boilers.—General theory and
design.—Valve gears and governors. Hf. 8 hours. 2d half-year.
16 Sc. Total 16.
- 12a¹. Mr. L. S. MARKS.—Efficiency and Economics of Engines and Boilers.
Hf. 8 hours. 1st half-year. 1 Gr., 11 Sc. Total 12.
- 12c². Mr. BURKE.—Heating and Ventilation of Buildings. Hf. 2 or 3 hours.
2d half-year. 17 Sc. Total 17.
- 13a. Mr. L. S. MARKS.—Engineering Laboratory.—General course in ex-
perimental methods.—Lectures (1 hour) and laboratory work (3 hours).
Hf. 1 Gr., 26 Sc. Total 27.
- 13b. Mr. L. S. MARKS.—Engineering Laboratory.—Advanced course in ex-
perimental Engineering. 9 hours. 8 Sc. Total 8.
- 13d. Mr. TURNER.—Engineering Laboratory.—Measurement of the flow of
water, and testing hydraulic machinery. Hf. 8 hours. 7 Sc. Total 7.
- 14a. Mr. MOSES.—Machine Design.—Designing the parts of machinery.—
Methods of proportioning the parts for strength and effect. 6 hours.
14 Sc. Total 14.

- 14b. Professor HOLLIS. — Machine Design. — Completed designs of machinery with estimates and specifications for contractors. 9 hours.
9 Sc. Total 9.
- 16a¹. Asst. Professor ADAMS and Mr. WHITING. — Industrial Applications of Electricity. — Lectures (2 hours) and laboratory work (3 hours). *Hf.* 1st half-year.
1 Gr., 15 Sc. Total 16.
- 16c¹. Asst. Professor ADAMS and Mr. WHITING. — Direct Current Dynamo-Electric Machinery. — Theory, testing, and practice in management. — Lectures (2 hours) and laboratory work (6 hours). *Hf.* 1st half-year.
1 Se., 13 Sc. Total 13.
- 16c². Asst. Professor ADAMS and Mr. WHITING. — Alternating Currents and Alternating Current Machinery. — Theory and testing. — Lectures (2 hours) and laboratory work (6 hours). *Hf.* 2d half-year.
1 Gr., 1 Se., 10 Sc. Total 12.
- 18a¹. Mr. BURKE. — Metallurgy. — Manufacture of the metals used in engineering construction. — Lectures on the practical working of iron and steel. *Hf.* 3 hours. 1st half-year.
1 Gr., 32 Sc. Total 33.
21. Professor HOLLIS. — Engineering Conference on the general theory of Machinery and the commercial and economic questions involved in the selection of types of machinery for given localities and duties. — Comparison of different methods of transmitting power. 1 hour.
2 Gr., 17 Sc. Total 19.
- 22². Mr. FISHER. — Contracts and Specifications. — The principles of Common Law as applied to contracts. — Practice in drawing up specifications. *Hf.* 1 hour. 2d half-year.
30 Sc. Total 30.

Military Science.

For Undergraduates and Graduates:—

- 1¹. Lieutenant ROBINSON (U. S. Artillery). — The Operations of War (organization, tactics, logistics, strategy); Military History; Military Law. — Lectures. — Required reading and reports. *Hf.* 3 hours. 1st half-year.
3 Gr., 58 Se., 35 Ju., 44 So., 9 Fr., 4 Sp., 13 Sc., 2 Law. Total 168.
- 2². Lieutenant ROBINSON (U. S. Artillery). — Military Engineering; Fortification; Ordnance and Gunnery; Electricity in Warfare. — Required reading and problems. *Hf.* 3 hours. 2d half-year.
2 Gr., 33 Se., 27 Ju., 33 So., 6 Fr., 3 Sp., 16 Sc. Total 132.

Physics.

Primarily for Undergraduates:—

- B. Professor HALL and Mr. McELFRESH. — Experimental Physics. — Lectures (1 hour) and laboratory work (2 hours). *Hf.*
24 So., 32 Fr., 14 Sp., 31 Sc. Total 101.
- C. Asst. Professor SABINE and Mr. T. LYMAN. — Experimental Physics. — Mechanics, Sound, Light, Magnetism, and Electricity. — Lectures (1 hour) and laboratory work (4 hours).
1 Gr., 5 Se., 7 Ju., 8 So., 19 Fr., 4 Sp., 20 Sc. Total 64.

1. Professor HALL and Mr. FISKE. — General Descriptive Physics. — Lectures (2 hours) and laboratory work (2 hours).

3 Se., 6 Ju., 14 So., 12 Fr., 5 Sp., 61 Sc. Total 101.

For Undergraduates and Graduates: —

2. Asst. Professor SABINE. — Light and Heat. — Lectures (2 hours) and laboratory work in Thermometry and Physical Optics (6 to 8 hours).

3 Gr. Total 3.

3. Professor B. O. PEIRCE and Mr. DOUGLASS. — Electrostatics, Electrodynamics, and parts of Electromagnetism. — Lectures (1 hour) and laboratory work (6 to 8 hours).

4 Gr., 2 Se., 3 Ju., 5 Sc. Total 14.

4. Professor TROWBRIDGE, Asst. Professor SABINE, and Mr. COLPITTS. — Electrodynamics, Magnetism, and Electromagnetism. — Lectures (2 hours) and laboratory work.

7 Gr., 3 Ju., 1 So., 3 Sc. Total 14.

- 6¹. Professor HALL. — Elements of Thermodynamics. *Hf.* 8 hours. 1st half-year.

6 Gr., 3 Se., 2 Ju., 26 Sc. Total 37.

- 6². Professor HALL. — Modern Developments of Thermodynamics. *Hf.* 8 hours. 2d half-year.

7 Gr., 2 Se., 1 Ju. Total 10.

Primarily for Graduates: —

9. Professor B. O. PEIRCE. — Portions of the Mathematical Theory of Electricity and Magnetism. 2 or 3 hours.

7 Gr., 1 Se. Total 8.

COURSES OF RESEARCH.

- 20a. Professor TROWBRIDGE. — Spectrum Analysis. 2 hours. 2 Gr. Total 2.

- 20b. Professor TROWBRIDGE. — The Electromagnetic Theory of Light. 4 hours.

1 Gr. Total 1.

- 20c. Professor B. O. PEIRCE. — Electricity and Magnetism. 2 Gr. Total 2.

- 20d. Professor HALL. — Electromagnetism and Heat Conduction.

1 Gr. Total 1.

- 20e. Asst. Professor SABINE. — Light and Heat.

3 Gr. Total 3.

Chemistry.

Primarily for Undergraduates: —

- B. Dr. TORREY and Mr. BLACK. — Experimental Chemistry. — Lectures (2 hours) and laboratory work (4 hours).

1 Se., 3 Ju., 14 So., 37 Fr., 9 Sp., 4 Sc. Total 68.

1. Professor JACKSON, and MESSRS. FULLER, CALHANE, CUSHMAN, GAZZOLO, HENDERSON, MERIGOLD, and ROBERTSON. — General Descriptive Chemistry. — Lectures (2 hours) and laboratory work (4 hours).

1 Gr., 17 Se., 40 Ju., 58 So., 48 Fr., 6 Sp., 128 Sc. Total 298.

- 2¹. Dr. TORREY. — Organic Chemistry (elementary course). *Hf.* 3 hours. 1st half-year.

14 Se., 23 Ju., 12 So., 4 Fr., 1 Sp., 9 Sc., 1 Law. Total 64.

3. Mr. SYLVESTER, and Messrs. DOW, MARK, and WHEELER.—Qualitative Analysis (chiefly laboratory work). 3 hours.

2 Gr., 15 Se., 25 Ju., 20 So., 2 Fr., 3 Sp., 30 Sc. Total 97.

4. Mr. BAXTER.—Quantitative Analysis, gravimetric and volumetric (chiefly laboratory work). 3 hours. 3 Gr., 8 Se., 5 Ju., 2 So., 6 Sc. Total 24.

For Undergraduates and Graduates:—

- 8¹. Asst. Professor RICHARDS.—History of Chemistry and Chemical Theory. *Hf.* 3 hours. 2d half-year.

3 Gr., 16 Se., 18 Ju., 8 So., 1 Sp., 8 Sc. Total 44.

- 9¹. Asst. Professor RICHARDS.—Advanced Quantitative Analysis. *Hf.*

3 hours. 1st half-year.

4 Se., 1 Sp., 3 Sc. Total 8.

- 10¹. Asst. Professor RICHARDS.—Gas Analysis. *Hf.* 3 hours. 2d half-year.

2 Gr., 6 Se., 3 Sc. Total 11.

5. Professor H. B. HILL and Mr. WHEELER.—The Carbon Compounds.—Systematic lectures upon the theories of Organic Chemistry and the properties of the more important compounds.—Ultimate organic analyses.—Preparation of organic compounds in the laboratory. 3 hours.

2 Gr., 14 Se., 2 Ju., 1 So., 5 Sc. Total 24.

Primarily for Graduates:—

6. Asst. Professor RICHARDS and Dr. GORDON.—Physical Chemistry.—Lectures (2 hours) and laboratory work.

1 Gr., 4 Se., 1 Ju., 4 Sc. Total 10.

COURSES OF RESEARCH.

- 20a. Asst. Professor RICHARDS.—Inorganic Chemistry, including Determination of Atomic Weights. 5 hours.

3 Gr., 2 Se. Total 5.

- 20b. Professor JACKSON.—Organic Chemistry. 5 hours.

3 Gr., 1 Se., 1 Sc. Total 5.

- 20c. Professor H. B. HILL.—Organic Chemistry. 6 hours.

3 Gr. Total 3.

- 20d. Asst. Professor RICHARDS.—Physical Chemistry. 5 hours.

2 Gr. Total 2.

Botany.

Primarily for Undergraduates:—

- 1². Professor GOODALE.—Botany.—Lectures (2 or 3 hours) and laboratory practice. *Hf.* 2d half-year.

2 Gr., 11 Se., 16 Ju., 21 So., 51 Fr., 9 Sp., 22 Sc. Total 132.

- 2¹. Dr. H. M. RICHARDS.—Morphology of Plants. *Hf.* Lectures (3 hours) and laboratory work. 1st half-year.

3 Gr., 8 Se., 7 Ju., 11 So., 1 Fr., 3 Sp., 27 Sc. Total 55.

For Undergraduates and Graduates:—

3. Professor GOODALE assisted by Mr. OLIVE.—Botany (second course).—Morphology, Histology (with special reference to the technique of the microscope), and Physiology of Flowering Plants. Lectures (3 hours), with demonstrations and laboratory practice.

5 Gr., 1 Se., 1 Ju., 2 So., 2 Sc. Total 11.

- 4². Professor FARLOW and Dr. H. M. RICHARDS. — Cryptogamic Botany. — Lectures and laboratory work. *Hf.* 8 hours. 2d half-year.
3 Gr., 2 Se., 1 Ju., 1 So., 1 Sc. Total 8.

Primarily for Graduates: —

COURSES OF RESEARCH.

- 20a. Professor GOODALE. — Structure and Development of Phanerogams. — Experimental Vegetable Physiology. — Systematic Botany (Phanerogams). — Economic and Medical Botany. 6 Gr., 2 Se., 1 Sc. Total 9.
20b. Dr. H. M. RICHARDS. — Structure and Development of Cryptogams.
6 Gr., 2 Se., 1 Sc. Total 9.

Zoölogy.

Primarily for Undergraduates: —

- 1¹. Dr. C. B. DAVENPORT assisted by R. W. HALL. — Zoölogy. — Lectures (3 or 8 hours) and laboratory demonstrations (8 hours). *Hf.* 1st half-year.
10 Se., 18 Ju., 21 So., 31 Fr., 10 Sp., 36 Sc. Total 121.
2². Dr. CASTLE assisted by Mr. WATTS. — Morphology of Animals. — Lectures (8 hours) and laboratory work. *Hf.* 2d half-year.
2 Gr., 1 Se., 5 Ju., 10 So., 4 Fr., 2 Sp., 24 Sc. Total 48.

For Undergraduates and Graduates: —

3. Dr. G. H. PARKER and Mr. R. H. JOHNSON. — Comparative Anatomy of Vertebrates. — Lectures, laboratory work, and reports. 8 hours.
2 Gr., 4 Se., 8 Ju., 10 So. Total 19.
4¹. Professor MARK and Dr. CASTLE. — Microscopical Anatomy. — Lectures and laboratory work. *Hf.* 8 hours. 1st half-year.
4 Gr., 4 Se., 2 Ju., 5 Sc. Total 15.
5². Professor MARK and Dr. CASTLE. — Embryology of Vertebrates. — Lectures and laboratory work. *Hf.* 8 hours. 2d half-year.
4 Gr., 4 Se., 4 Sc. Total 12.
9. Dr. R. T. JACKSON. — Fossil Invertebrates. — Lectures (2 hours) and laboratory work.
1 Gr. Total 1.
10. Dr. C. B. DAVENPORT. — Experimental Morphology. — Ontogenesis studied as a process. — Lectures (2 hours), laboratory work, and a thesis.
5 Gr., 1 Sc. Total 6.
15¹. Dr. G. H. PARKER. — The Nervous System and its Terminal Organs. — Sense Organs. — Lectures and reports. *Hf.* 8 hours. 1st half-year.
3 Gr., 4 Se., 2 Ju., 3 Sc., 2 Me. Total 14.

Primarily for Graduates: —

COURSE OF RESEARCH.

- 20a. Professor MARK. — Anatomy and Development of Vertebrates and Invertebrates.
10 Gr., 1 Sc. Total 11.

Geology and Geography.

Primarily for Undergraduates:—

- A¹. Professor DAVIS and Mr. BOUTWELL.—Elementary Physiography.—Lectures (3 hours), written exercises, conferences (1 hour), and laboratory and field work. *Hf.* 1st half-year.

9 Ju., 15 So., 3 Fr., 6 Sp., 29 Sc. Total 62.

- B². Mr. WARD.—Meteorology (elementary course).—Lectures (3 hours), conferences (1 hour), written exercises, observations, and laboratory work. *Hf.* 2d half-year.

2 Gr., 1 Se., 21 Ju., 27 So., 20 Fr., 6 Sp., 26 Sc. Total 103.

4. Professor SHALER and Messrs. J. B. WOODWORTH and WOODMAN.—Elementary Geology. Lectures, with collateral reading. *Hf.* 2 hours.

4 Gr., 4 Se., 81 Ju., 114 So., 118 Fr., 17 Sp., 53 Sc. Total 391.

- 5³. Messrs. J. B. WOODWORTH, WOODMAN, and WHITE.—Elementary Field and Laboratory Geology.—Laboratory work with occasional lectures (4 hours), in February and March; field work (one half-day) and laboratory work, in April and May. *Hf.* 2d half-year.

4 Gr., 1 Se., 9 Ju., 16 So., 29 Fr., 3 Sp., 31 Sc. Total 93.

For Undergraduates and Graduates:—

- 7². Professor DAVIS.—Physiography of Europe.—Lectures, library work, and reports. *Hf.* 3 hours. 2d half-year.

3 Gr., 3 Se., 1 So., 1 Sp., 4 Sc. Total 12.

8. Messrs. J. B. WOODWORTH and WOODMAN.—General Critical Geology.—Lectures, field work, reports, and reading. 2 hours and field work.

4 Se., 4 So., 2 Sp., 6 Sc. Total 16.

- 16¹. Mr. J. B. WOODWORTH.—Glacial Geology.—Lectures, conferences, and field work. *Hf.* 2 hours and field and laboratory work. 1st half-year.

3 Gr., 6 Se., 1 So., 3 Sc. Total 13.

- 27². Asst. Professor SMYTH.—Pre-Cambrian Geology of North America: with especial reference to the stratigraphy and economics of the rocks in the original Laurentian area and the region of the Great Lakes. *Hf.* 2d half-year.

2 Gr., 1 So., 2 Sc. Total 5.

- 28¹. Professor REUSCH.—Volcanoes and their relation to Eruptive Rocks in general.—Earthquakes and their relation to movements of the Earth's Crust. *Hf.* 3 hours. 1st half-year.

3 Gr. Total 3.

- 29². Professor REUSCH.—The Geology of Northern Europe, and its bearings on General Geology. *Hf.* 3 hours. 2d half-year.

2 Gr., 1 So., 1 Sc. Total 4.

- 17¹. Dr. JAGGAR.—Experimental and Dynamical Geology.—Lectures (2 hours), laboratory work, and occasional field work. *Hf.* 1st half-year.

1 Se. Total 1.

- 19². Mr. WARD.—Climatology.—Lectures (3 hours), library work, and reports. *Hf.* 2d half-year.

4 Se., 7 Ju., 2 So., 1 Sp., 1 Sc. Total 15.

14. Professor SHALER and Dr. R. T. JACKSON. — General Palaeontology. — Lectures and theses. *Hf.* 2 hours.
2 Gr., 4 Sp., 4 Ju., 4 So., 2 Sp., 5 Sc. Total 21.
15. Professor SHALER and Dr. R. T. JACKSON. — Historical Geology. — Laboratory and field work, with conferences and theses. 1 hour.
3 Gr., 3 Sc. Total 6.
16. Asst. Professor SMYTH. — Mining Geology. — The origin and geological relations of ore-deposits. — Lectures, reading, and occasional field work. 3 hours.
1 Gr., 2 Se., 1 So., 5 Sc. Total 9.
17. Professor SHALER and Asst. Professor SMYTH. — Economic Geology. — Non-metalliferous products and water-supply. — Lectures, reading, and theses. *Hf.* 2 hours. 1st half-year. 1 Se., 4 Sc. Total 5.

Primarily for Graduates:—

COURSES OF RESEARCH.

20. Professor DAVIS. — Physiography (advanced course). — Conferences, reports, and theses. 1 or 2 hours. 3 Gr., 1 Se., 3 Sc. Total 7.
- 22a. Professors SHALER, DAVIS, and WOLFF, Asst. Professor SMYTH, Dr. JAGGAR, and Mr. J. B. WOODWORTH. — Advanced Geological Field Work. — Field and library work, with reports, conferences, and theses. 1 hour. 2 Gr., 1 Sp., 4 Sc. Total 7.
- 22b. Professor SHALER and other instructors in the Department. — Geological Investigation in the Field and Laboratory. 2 Gr. Total 2.

Mineralogy and Petrography.

Primarily for Undergraduates:—

2. Professor WOLFF, Dr. PALACHE, and Dr. EAKLE. — Mineralogy (including Crystallography, Physical and Chemical Mineralogy, and Descriptive Mineralogy). 3 hours and laboratory work.
1 Gr., 3 Se., 4 Ju., 6 So., 1 Fr., 2 Sp., 13 Sc. Total 35.

For Undergraduates and Graduates:—

12. Professor WOLFF. — Petrography. — Lectures (2 hours), laboratory work, and theses. 2 Gr., 2 Sc. Total 4.

Mining and Metallurgy.

These courses cannot be counted towards the degree of A.B.

13. Asst. Professor SMYTH. — Mining. — Prospecting and Exploring. *Hf.* 3 hours. 2d half-year. 6 Sc. Total 6.
21. Mr. FORSYTHE. — Metallurgy. — Metallurgy of iron and steel, copper and nickel. — Lectures (3 hours), reading, and excursions. *Hf.* 1st half-year. 1 Gr., 3 Sc. Total 9.
22. Mr. FORSYTHE. — Metallurgy. — Metallurgy of lead, zinc, gold, silver, and the minor metals. Lectures (3 hours), reading, and excursions. *Hf.* 2d half-year. 1 Gr., 1 Se., 1 Sp., 8 Sc. Total 11.

5. Asst. Professor SMYTH. — Mining. — Coal and Metal Mining, including excavation, development, underground and surface transportation, drainage, ventilation. — Lectures (3 hours) and reading. 3 Sc., 1 Sp. Total 4.

6. Mr. FORSYTHE. — Metallurgical Chemistry. — The analysis of ores, metals, slags, fuels, and refractory materials. — Fire assaying. — Chiefly laboratory work. 3 hours. 1 Gr., 1 Sc. Total 2.

American Archaeology and Ethnology.

For Undergraduates and Graduates: —

1. Messrs. RUSSELL and DIXON. — General Anthropology. — Somatology; Archaeology, Ethnology, and Ethnography. — Lectures (3 hours) and laboratory work. 3 Gr., 4 Se., 1 Ju., 1 So. Total 9.

Primarily for Graduates: —

2^d. Mr. RUSSELL. — Somatology. — Lectures and laboratory work. *Hf.*
3 hours. 2d half-year. 1 Gr. Total 1.

COURSE OF RESEARCH.

20a. Professor PUTNAM. — American Archaeology and Ethnology.
4 Gr. Total 4.

Anatomy, Physiology, and Hygiene.

These courses may be counted towards the degree of S.B. only, except Courses 1 and 10, which may also be counted towards the degree of A.B.

13. Asst. Professor G. W. FITZ and Dr. M. H. BAILEY. — Elementary Anatomy and Physiology. — Personal Hygiene. — Emergencies. — Lectures (3 hours) and laboratory work (3 hours). *Hf.* 2d half-year.
1 Gr., 17 Se., 12 Ju., 21 So., 2 Fr., 2 Sp., 23 Sc., 3 Me. Total 61.

10¹ Asst. Professor G. W. FITZ. — General Hygiene. — Lectures (2 hours), laboratory work, excursions, and reports. *Hf.* 1st half-year.
4 Se., 6 Sc. Total 10.


2¹. Dr. D. A. SARGENT and Asst. Professor G. W. FITZ. — History and Philosophy of Physical Education. *Hf.* 1 hour. 1st half-year. 4 Sc. Total 4.

4¹. Dr. D. A. SARGENT. — Anthropometry. — Measurements and Tests of the Body. — Effects of Age, Nurture, and Physical Training. — Lectures and practical exercises. *Hf.* 3 hours. 1st half-year. 1 Sc. Total 1.

5¹. Dr. D. A. SARGENT. — Applied Anatomy and Animal Mechanics. — Action of the muscles in different exercises. — Lectures and demonstrations. *Hf.*
3 hours. 2d half-year. 1 So., 1 Sc. Total 2.

6¹ Asst. Professor G. W. FITZ. — Remedial Exercises. — The correction of abnormal conditions and positions. — Lectures and demonstrations. *Hf.*
2 hours. 2d half-year. 1 Sc. Total 1.

Summer Courses of Instruction, 1898.

The following is a list of the Courses of Instruction given during the summer of 1898, under the direction of the Faculty of Arts and Sciences, with an enumeration and classification of the students taking each course. The same abbreviations are used as in the list of Courses of Instruction for 1897-98, with the addition of the abbreviation S.S. to denote persons in attendance on the Summer School and otherwise unconnected with the University. The index  denotes courses which may be offered to count towards a degree.

SUMMER COURSES OF 1898.

Greek.

- A. Dr. GULICK.**—Greek for Beginners. 6 times a week, for 6 weeks.
1 Gr., 2 Sp, 8 S. S. Total 11.
- B. Dr. GULICK.**—Greek for Teachers.—Discussion of elementary text-books, and methods used in teaching beginners.—Practice in reading Xenophon and Homer. 6 times a week, for 6 weeks. 1 Se., 4 S. S. Total 5.

Latin.

- Dr. MATHER.**—Discussion of methods in teaching Latin to beginners.—Literary study of selections from Pliny's Letters, Juvenal's Satires, and Martial's Epigrams. 6 times a week, for 6 weeks. 22 S. S. Total 22.

English.

- A. Mr. HURLBUT, assisted by Mr. J. G. HART.**—English Composition (elementary course). 5 times a week, for 6 weeks.
1 Me., 63 S. S. Total 64.
- B. Mr. ABBOTT, assisted by Mr. J. G. HART.**—English Composition (advanced course). 5 times a week, for 6 weeks. 45 S. S. Total 45.
- C. Mr. YOUNG.**—English Composition (second advanced course). 5 times a week, for 6 weeks. 9 S. S. Total 9.
- Dr. SCHOFIELD.**—Anglo-Saxon. 6 times a week, for 5 weeks.
4 S. S. Total 4.
- Dr. FARLEY.**—Chaucer. 5 times a week, for 6 weeks. 2 S. S. Total 2.
- Mr. HURLBUT, assisted by Mr. J. G. HART.**—English Literature of the Eighteenth Century. 5 times a week, for 6 weeks. 43 S. S. Total 43.

German.

- Dr. POLL.**—Elementary Course.—Grammar, reading, and composition.
6 times a week, for 6 weeks. 12 S. S. Total 12.

Dr. POLL. — Advanced Course. — Daily lectures, in German, on the history of German Literature, accompanied by the cursory reading of the Nibelungenlied and a few representative works of later periods. — Interpretation of Schiller's Wallenstein, and of Goethe's Faust (Part I). — Themes in German on subjects connected with the lectures or the reading. 6 times a week, for 6 weeks. 1 Gr., 7 S. S. Total 8.

French.

Mr. C. H. C. WRIGHT. — Introductory Course. — Grammar, reading, and composition. 6 times a week, for 6 weeks. 18 S. S. Total 18.

Mr. C. H. C. WRIGHT. — Advanced Course. — (a) Lectures, in French, on the history of French literature, with special reference to the Classical period (Cornelle, Racine, Molière), and to the great literary movement of the Nineteenth century. — (b) A thorough study of Corneille's Polyucte, Racine's Athalie, Molière's les Femmes Savantes. Two or three of the more important works of the Nineteenth Century were taken up in a similar manner. — (c) Summaries of works and themes on selected topics. 6 times a week, for 6 weeks. 16 S. S. Total 16.

History and Government.

I. **Professor HART and Mr. LEARNED.** — American History.

1 So., 25 S. S. Total 26.

II. **Professor HART and Mr. F. H. WHITE.** — Civil Government.

2 S. S. Total 2.

III. **Dr. BOTSFORD.** — Greek History.

1 So., 16 S. S. Total 17.

IV. **Mr. J. P. WARREN.** — Historical Excursions.

Psychology.

Professor MÜNSTERBERG and Mr. J. E LOUGH. — Experimental Psychology.

6 times a week, for 6 weeks. 1 Gr., 2 Sc., 1 Di., 21 S. S. Total 25.

Education and Teaching.

I. **Asst. Professor HANUS.** — General Principles of Education, and Courses of Study. 55 S. S. Total 55.

II. **Mr. G. H. LOCKE.** — History of Education.

Asst. Professor HANUS. — Methods of teaching Geometry and Algebra. 6 times a week, for 6 weeks. 15 S. S. Total 15.

Architecture.

Asst. Professor WARREN. — Architectural Drawing and Design. 8 Sc. Total 8.

Mathematics.

SI. Mr. ASHTON. — Elementary Solid Geometry. 5 times a week, for 6 weeks. 1 Ju., 2 So., 2 Fr., 2 Sc., 4 S. S. Total 11.

83. Mr. LOVE. — Plane Trigonometry. — Logarithms. — Problems in the calculation of heights, distances, and areas, and in sailing. 5 times a week, for 6 weeks. 1 Ju., 3 So., 5 S. S. Total 9.

83. Mr. LOVE. — Plane Analytic Geometry. 5 times a week, for 6 weeks. 1 Fr., 3 S. S. Total 4.

84. Mr. ASTON. — Calculus. 5 times a week, for 6 weeks. 1 Ju., 1 So., 3 Sc. Total 5.

Astronomy.

Dr. WILLSON. — Descriptive Astronomy. 1 Gr., 1 Sc., 3 S. S. Total 5.

Engineering.

81. Mr. TURNER. — Surveying, Plotting, and Topographical Drawing. — Johnson's Theory and Practice of Surveying. — Geodesy. 6 times a week, for 5 weeks. 3 Ju., 1 Fr., 7 S. S. Total 11.

82. Mr. TURNER. — Railroad Engineering. 3 Ju., 1 Fr., 7 S. S. Total 11.

Physics.

81. Mr. J. Y. BERGEN. — Elementary Experimental Physics. 6 times a week, for 6 weeks. 1 Sp., 1 Sc., 24 S. S. Total 26.

82. Asst. Professor SABINE. — Experimental Physics. — Measurements in Mechanics, Sound, Light, Electricity, and Magnetism. 6 times a week, for 6 weeks. 1 So., 1 Sp., 3 Sc., 8 S. S. Total 13.

Chemistry.

Dr. TORREY and Messrs. POTTER and PERKINS. — General Chemistry. 6 times a week, for 6 weeks. 1 Gr., 1 So., 20 S. S. Total 22.

Mr. SYLVESTER. — Qualitative Analysis. 6 times a week, for 6 weeks. 3 S. S. Total 3.

Dr. GORDON. — Physical Chemistry. 2 S. S. Total 2.

Botany.

81. Professor GOODALE and Mr. OLIVE. — Vegetable Morphology and Systematic Botany. — Laboratory in both subjects. 6 times a week, for 6 weeks. 2 So., 1 Fr., 22 S. S. Total 25.

Geology.

81. Professor SHALER, Dr. JAGGAR, and other instructors in the Division of Geology. — Elementary Geology (at Cambridge). 6 times a week, for 6 weeks. 1 Ju., 2 So., 3 Fr., 2 Sc., 8 S. S. Total 16.

Geography.

Professor DAVIS and Mr. BOUTWELL. — Elementary Physiography. 6 times a week for 6 weeks. 1 Gr., 43 S. S. Total 46.

Professor DAVIS and Mr. JEFFERSON. — Physiography (second course). —
 Physiography of the United States. 6 times a week, for 6 weeks.
 9 S. S. Total 9.

Physical Training.

Dr. SARGENT and assistants. — Physical Training. 88 S. S. Total 88.

Instruction provided for 1898-99.

The Announcement of Courses of Instruction for 1898-99 was issued as usual in pamphlet form near the close of the last academic year, and may be found, corrected to date, in the Annual Catalogue of the present year. Some changes have been made in the interval, owing to the unexpected absence of instructors and to other causes. Among these changes is the temporary suspension of the courses in Roman Law and in Military Science. On the other hand, some new courses have been added to the list; but the net result is a very slight decrease in the total amount of instruction as compared with that offered for 1897-98. The new list shows no fundamental change of plan. It contains, as usual, many changes of detail, especially changes of instructors or of the plan of instruction in some of the courses that are given regularly every year, and changes due to alternation or rotation among the more advanced courses. There were also some changes of arrangement. Into these minor changes it seems unnecessary to enter here. On the other hand, the following courses, which are distinct additions to the list, may properly receive special notice: —

Mr. A. L. LYTHER. — Egyptian Archaeology. *Hf.*

Dr. BORSFORD. — The Histories of Herodotus (read and discussed in the original Greek).

Professor WHITE. — History of the Greek Drama. — Lectures on the dramatic art and literature of the Greeks, with collateral reading and study of representative plays. *Hf.*

Professors MORGAN and MARSH. — The works of Virgil, with studies of his sources and his literary influence from his own times to the Renaissance.

Asst. Professor MORGAN. — The early career of Cicero, to the end of the prosecution of Verres. — Lectures and reading of the Orations. — *Hf.*

Professor SMITH. — Introduction to Latin Epigraphy. *Hf.*

Asst. Professor C. P. PARKER. — Social Movements in the First Century. *Hf.*

Professor WRIGHT. — Studies in Classical Archaeology and Art (a course of research, chiefly in the literary and epigraphic history of Greek and Græco-Roman art). *Hf.*

Professor A. S. HILL. — English Composition and Literature. — Study of leading writers as masters of style. *Hf.* (to take the place of the second half of English 5).

Professor WENDALL. — English Literature: Literary History of America. *Hf.*

Mr. NICHOLS. — History of German Literature in the Nineteenth Century. *Hf.*

Professor VON JAGEMANN. — Introduction to the study of Germanic Philology (second course). *Hf.*

Asst. Professor SCHILLING. — Kudrun and the kindred Sagas in other Germanic dialects. (Seminary course.)

Professor FRANCKE. — Selected German Passion Plays of the Fifteenth Century. *Hf.* (Seminary course.)

Dr. SCHOFIELD. — Modern Danish and Norwegian Literature. — Holberg, Oehlenschläger, Ibsen, Björnson, and other writers; practice in the spoken language; lectures on Scandinavian literature.

Dr. SCHOFIELD. — The Origin and Literary History of the Arthurian Legends and Romances.

Mr. FLETCHER. — History of the Pastoral, particularly in the Renaissance. *Hf.*

Professor EMERTON. — The History of Christian Thought, considered in its relation to the prevailing philosophy of each period, from the earliest times to the Eighteenth Century.

Professor HART. — The Sources and Literature of American History. *Hf.*

Professor CHANNING. — English Institutions in the Tudor and Stuart Periods. (Seminary course.)

Professors STROBEL and BRALE. — International Law. (Seminary course.)

Dr. CUNNINGHAM (of Trinity College, Cambridge, England). — Western Civilization (Mediæval and Modern) in its Economic Aspects. *Hf.*

Dr. CUNNINGHAM. — The Industrial Revolution in England. *Hf.*

Dr. J. CUMMINGS. — Ethnology in its applications to Economic and Social Problems. *Hf.*

Professor EVERETT. — A Study of Fichte, with special reference to the Philosophy of Religion. (Seminary course.)

Mr. E. ROBINSON. — Classical Archaeology (an advanced course arranged primarily for students who contemplate entering the American School of Classical Studies at Athens).

Asst. Professor M. BÔCHER. — The Theory of Numbers. *Hf.*

Professor F. S. WOODS (of the Massachusetts Institute of Technology). — Higher Geometry.

Dr. BOUTON. — Lie's Theories as applied to Differential Equations.

Asst. Professor OSGOOD. — The Icosahedron and the Elliptic Modular Functions. (Course of research.)

Ast. Professor M. BOCHER. — Euclid and the Hypotheses of Geometry. (*Course of research.*)

Professor ASAPH HALL (U. S. Navy). — Spherical Astronomy.

Ast. Professor JOHNSON. — Elementary Structural Design. *Hf.*

Professor B. O. PEIRCE. — The Mathematical Theory of Electricity and Magnetism (*second course*). *Hf.*

Dr. JAGGAR. — Structural and Dynamical Geology of the United States. *Hf.*

Professor PUTNAM and Mr. DIXON. — Primitive Religions (*theories of origin, animism, totemism, fetishism, etc.*). *Hf.*

The Degree of Master of Science.

The proposition to establish a degree in Science parallel to that of Master of Arts, and standing between the degrees of S.B. and S.D. as the A.M. stands between the A.B. and the Ph.D., was brought to the attention of the Faculty in the summer of 1895 by the Administrative Board of the Lawrence Scientific School, and was subsequently referred to a committee for consideration. On the recommendation of this committee the Faculty voted on the ninth of November, 1897, "to request the Corporation and Board of Overseers to institute the degree of Master of Science, and to commit the administration of this degree to the Faculty of Arts and Sciences, subject to all the regulations relating to degrees contained in the Statutes, with the understanding that the degree shall be maintained for the promotion of advanced study in some special field of Science, and that it shall never be given as an honorary degree."

On receiving notice that action had been taken by the governing boards in accordance with this request, the Faculty proceeded to formulate rules for the administration of the newly established degree. Under these rules, which were adopted June 21, 1898, candidacy for the degree of Master of Science is open to any Bachelor of Science or Bachelor of Arts of Harvard University, and the Committee on Admission to the Lawrence Scientific School from other Scientific Schools is empowered to admit (with or without conditions) other persons whose attainments it deems sufficient; but in either case the applicant must satisfy the Division in which he wishes to study that he is qualified by his previous training for such candidacy. The course of study for the degree must be of such character that it can be properly pursued under the supervision of a single Division of the Faculty, and while not necessarily lying within any one department or field, must form a consistent plan of work, with a definite aim in view. It must occupy at least one academic year, and must be

pursued with high credit. Candidates are registered in the Graduate School, and the Administrative Board of that School has general charge of the award of the degree, so far as may be necessary to enforce the formal requirements, and to guard against possible inequalities in the standards maintained by the several Divisions.

Revision of the Requirements for Admission.

This difficult subject, which has been under consideration, first by a large committee of the Faculty and then by the Faculty itself, since 1894, was taken up early in the year. A history of the successive changes that have been made in the requirements for admission and an account of the progress made in the present revision down to the end of the academic year 1896-97 was given by my predecessor, Professor J. M. Peirce, in his last annual report. At that time the Faculty had completed the work of defining the requirements in the several studies in which the candidate may present himself for examination. The old definitions had been thoroughly revised, and definitions formulated for a number of new studies which it is proposed to accept in satisfaction of the requirements for admission. The new series of definitions was published in a special pamphlet in the summer of 1897, and again in the Annual Catalogue for 1897-98 (pp. 288-302).

The Faculty had also, during the year 1896-97, drawn up a preliminary statement of terms of admission to the Lawrence Scientific School, which was explained by Professor Shaler, as Dean of the School, in his report for that year, and may also be found in the Catalogue (pp. 308-306). The most important feature of the scheme,—the gradual raising of the admission requirements of the Scientific School to substantial equality with those of the College—has already received the approval of the governing boards, and the precise determination of certain details alone requires the final action of the Faculty.

The problem still awaiting solution was the formulation of the terms of admission to Harvard College, and to this the Faculty devoted its first seven regular meetings of the year. The problem was in effect to determine which of the studies should be prescribed for all candidates, and which should be elective; what restrictions, if any, should be placed on the choice of elective studies; what relative weight should be assigned to the several studies in comparing elective studies with one another and in determining the candidate's fitness for admission; and, finally, what should be

the total amount of the requirement. The method to be pursued in formulating the terms of admission, so far as the last two questions are concerned, had already been decided upon. The Faculty had published, in the pamphlet referred to above, its purpose "to assign to each study a certain number of points, representing the relative weight which that study will have in determining the question of a candidate's fitness for admission, and to state the total amount of the requirement for admission in the form of a fixed aggregate of points which may be made up by various combinations of studies under regulations to be announced hereafter"; and with this had coupled the further announcement that the Faculty "does not intend to increase the total amount of work required in preparation" for admission.

The policy here announced made it necessary for the Faculty to consider carefully the effect of the new definitions on the time and effort required for preparation in the several studies. There were changes of substance in three of the existing requirements. In Elementary Mathematics, under the title 'Geometry' a new definition, including a certain amount of solid geometry, was substituted for the old 'Plane Geometry'; but as a candidate who passes in it is credited with one 'point' more than if he passed in Plane Geometry, this change constitutes no increase of the total requirement for admission. Moreover the old requirement of Plane Geometry is to be allowed as an alternative until 1903. In Elementary Physical Science, on the other hand, the alternative of an examination in Physics and Astronomy, based on text-books, was dropped in the new definitions. In Elementary Latin the main test is to be the translation at sight of simple prose and verse, instead of simple prose only. The object of this change was to adjust the line of division between the Elementary and the Advanced Latin to the terms of the requirements, which call for a three years' preparation for the Elementary, and one more for the Advanced Latin,—a demand quite in accordance with the actual practice of the schools. It involves no increase in the total requirement in Latin, and therefore does not affect the great majority of candidates, but only those—about seventeen per cent. during the last four years,—who do not offer Advanced Latin; and indeed not all of these, for many if not most of them come from schools in which they have received adequate preparation for the elementary requirement in its new form. The change, moreover, is a return to the requirements as they existed down to 1887, when the elementary examination included six books of the *Aeneid*.

But apart from these changes in the substance of the requirements, there is a general tendency in the new definitions towards a greater degree of thoroughness in methods of examination. This is most marked in Elementary History, in which under the method of examination formerly in use it was not possible to hold the candidate to a thorough course of preparation or to baffle hasty cramming. Under the new definition, while the fields of study remain substantially unchanged, a very thorough method of study, including considerable written work, is prescribed and is to be enforced by the examinations. In Greek, Latin, German, and French, methods of testing the candidate's mastery of forms, constructions, and idioms are introduced or are made more thorough, which will operate to head off a very superficial kind of preparation with which some candidates, especially in the modern languages, have successfully met the test of the examinations; but they add nothing to what we have heretofore professed to require, and are not expected to increase the time now given to preparation in these languages in good schools.

It should be added that the Committee which reported the new definitions to the Faculty drew them up, as it had been instructed to do, in conformity with the programmes of the Committee of Ten for preparatory courses of four years; and that the courses of study demanded by the several definitions had been most carefully considered in consultation with teachers of secondary schools, partly by personal correspondence, partly through conferences. Having taken an active part in several of these conferences, as well as in the deliberations of the Committee, I venture to express the opinion that, under the new definitions, the present total requirement comes within the capacity of a well conducted school course of four years, which has heretofore been regarded as the minimum adequate course for preparation. Whether there is an increase over the present requirement, as enforced by the present examinations, is another question. The Faculty thought it wise, on the whole, to guard against such an increase by reducing the total requirement by one point. The existing requirement, if estimated according to the new system, would amount to 27 points; the total requirement in the new scheme is fixed at 26 points. A 'point' is estimated to represent approximately a half-year's work in one study, of four or five lessons a week, in school, or a 'half-course' in College.

The scheme adopted by the Faculty is as follows:—

The studies which may be presented in satisfaction of the requirements for admission to Harvard College are named in the following list. The figure attached to each study indicates the relative weight which will be given to that study in determining the question of the candidate's fitness for admission.

<i>Elementary.</i>	<i>Advanced.</i>
English (4).	Greek Authors (2).
Greek (3).*	Greek Composition (1).
Latin (4).	Latin Authors (2).
German (2).	Latin Composition (1).
French (2).	German (2).
	French (2).
<hr/>	
One of the following four:—	
Ancient History (2).	Ancient History (2).
or	English and American History (2).
English and American	History of Europe (2).
History (2).	History of a period (2).
<hr/>	
Algebra (2).	Algebra (1).
Geometry (3).	Logarithms and Trigonometry (1).
or (until 1903)	Astronomy (1).
Plane Geometry (2).	
<hr/>	
Physics (2).	Physics (2).
Chemistry (2).	Meteorology (1).
Physiography (1).	
Anatomy, etc. (1).	

No candidate for admission may offer an advanced study who does not at the same time or earlier offer the corresponding elementary study; but Physics is considered elementary with respect to Meteorology, and Geometry with respect to Astronomy.

A candidate must offer studies aggregating twenty-six points, at least four of which must be in advanced studies. The studies offered must include:—

English	4
One ancient language (Elem. Latin or Elem. Greek)*	4
One modern foreign language (Elem. German or Elem. French)	2
Geometry or (until 1903) Plane Geometry	3 or 2
Studies aggregating 2 points from the following observational sciences (Elem. Physics, Chemistry, Physiography, Anatomy, Astronomy)	2
	<hr/>
	15 or 14

* Elementary Greek offered without Latin will count 4.

As regards the classification of studies, the 'Elementary' list in the new scheme includes all the elementary studies of the old plan, with the addition of Chemistry, transferred from the 'Advanced' list, and two new studies, Physiography, and Anatomy, Physiology, and Hygiene. In the new 'Advanced' list Chemistry and Analytic Geometry have disappeared, and three new studies, History, Astronomy, and Meteorology, have been added.

In the rating of the several studies, the Faculty had given to the advanced studies a weight in the old plan out of proportion to the amount of work supposed to be demanded by them in preparation. Thus Advanced German counted two points, Elementary German only one, though each was defined as equivalent to one full course in college. The grounds for this difference were, first, the greater progress made by a student at a more advanced stage of his preparation than in the same amount of time at a less advanced stage, — a principle recognised also in our college scheme, where the nominal amount of work required of a student diminishes from his Freshman to his Senior year; and, secondly, the greater importance of the candidate's preparation in his last year from its closer bearing on his college work. In the new scheme this disproportion is no longer maintained. While the advanced studies are rated as heretofore, — those which are defined as equivalent to a full course in college counting two points, those equivalent to a half-course counting one, — the elementary studies as a rule have been given twice the weight they now have; thus English is to count four points instead of two, German two instead of one, etc. The only exceptions to this rule are in the classical and mathematical studies. Of the former, Latin is assigned four points instead of two, but Greek only three points instead of two, with the proviso that Greek, if presented without Latin, shall count four points. Elementary Greek and Latin together, therefore, can in any case count only seven points, or one point less than if their relative weight under the existing plan had been maintained. In Elementary Mathematics, on the other hand, Algebra and Geometry together may count under the proposed scheme for five points, or one point more than would be given them in accordance with their present rating, but at the expense of some increase of work, as explained above.

The range and freedom of election open to the candidate are materially enlarged in the proposed plan. The list of advanced studies, which are all to be elective as heretofore, remains, in number and amount, the same as before, the loss of Chemistry and of Solid and Analytic Geometry having been made good by the addition of

History, Astronomy, and Meteorology; so that the only enlargement of election in this list is in the choice among four fields of History open to a candidate who elects that study. In the elementary list, on the other hand, there is a considerable enlargement of choice. At present the elementary studies are all prescribed, with the exception that for one ancient and for one modern language a substitute may be presented under certain restrictions. For one of the modern languages one whole advanced study may be substituted, but the student is then required to take the omitted language as one of the studies of his Freshman year. This conditional postponement of German or French is retained in the new plan, but the candidate in his choice of a substitute is no longer restricted to advanced studies. For one of the ancient languages the candidate is at present permitted to substitute advanced studies amounting to two full courses, of which one must be in mathematics and the other either in mathematics or in physical science. In the new scheme any elective study, whether elementary or advanced, may be substituted for Greek or for Latin, and as a consequence of its reduced rating, the amount of the substitute demanded is only three quarters of what is demanded at present. In physical science, while the text-book Physics and Astronomy has been withdrawn as an alternative for Experimental Physics, the candidate's choice has on the whole been much widened by the admission of four other 'observational sciences,' as studies from which he may make his choice. Finally, History and Algebra, at present prescribed for all candidates, are made elective by the new plan.

The requirement of advanced studies aggregating four points is a continuation of the provision in the present terms of admission whereby every candidate must pass on at least two advanced studies; but it is less severe, because at present every substitute for an elementary study must be made up of studies taken from the advanced list, *in addition* to the two demanded of all candidates; whereas, under the proposed scheme, the candidate may omit, for example, either Greek or German without going beyond the minimum requirement of two advanced studies or even taking Chemistry or Solid Geometry, which are now open to him in the advanced list. If we count these as elementary studies, as they are classed in the new plan, he may omit *both* Greek and German, and still take only two advanced studies, instead of five, as at present.

These are the essential points of difference between the present requirements for admission and those proposed in the plan adopted by the Faculty on January 4, and transmitted to the Corporation for

the consideration of that body and of the Board of Overseers. On October 11, 1898, the Faculty received from the Corporation a copy of the votes passed June 15 by the Overseers, which expressed general approval of the various measures passed by the Faculty relating to admission requirements, with the exception of the proposed terms of admission to Harvard College, in regard to which the vote was as follows:—

Resolved, That the proposed changes in the requirements for admission are not entirely satisfactory, and that the proposed scheme be recommitted to the Faculty of Arts and Sciences for further consideration and report, to the end that the preparation in Algebra and History now required of candidates for admission may not be reduced.

The question is thus recommitted to the Faculty and is now again under consideration.

CLEMENT L. SMITH, *Dean*.

DECEMBER, 1898.

THE COLLEGE.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I beg to make my report on the condition of Harvard College during the academic year 1897-98.

The number of students at the beginning of the year was eighteen hundred and nineteen:—

Seniors	342
Juniors	387
Sophomores	450
Freshmen	471
Total number of Undergraduates	1650
Special Students	169
	<u>1819</u>

Compared with the figures of the preceding year, these figures show a gain of sixty-five:—

	Gain.	Loss.
Seniors	14	..
Juniors	10	..
Sophomores . . . . .	..	23
Freshmen	55	..
Special Students	9	..
	<u>88</u>	<u>23</u>
	65	
Net gain	65	

One Senior on leave of absence, one Senior in regular attendance, one Sophomore, and one Special Student died within the academic year. A soldier from the class of 1900 died in the summer vacation.

Three hundred and ninety-two students, of whom seventy were not registered as Seniors, received in June, as members of the graduating class, the degree of Bachelor of Arts. The losses and the gains in the three younger classes between November, 1897, and November, 1898, may be learned from the following tables:—

	November, 1897.	Loss.	Gain.	November, 1898.
Class of 1899 . .	(Juniors) 387	95	74	(Seniors) 366
Class of 1900 . .	(Sophomores) 450	150	86	(Juniors) 336
Class of 1901 . .	(Freshmen) 471	84	120	(Sophomores) 507
		<u>329</u>	<u>280</u>	
Net loss in the three classes between Nov. 1897, and Nov. 1898 99				

	Class of 1899.	Class of 1900.	Class of 1901.	Total for three classes.
LOSSES.				
Left College before the end of the year . .	4	12	20	36
Left College at the end of the year	70	27	23	120
Were "dropped" and left College	8	12	2	22
Entered a lower class	4	52	27	83
Entered a higher class	9	47	12	68
Total loss	95	150	84	329
GAINS.				
From higher classes	2	6	52	60
From lower classes	48	11	0	59
Newly admitted	24	19	68	111
Total gain	74	36	120	230
Net loss	21	114	0	99
Net gain	0	0	36	0

The next table shows the losses and the gains in the number of Special Students since December, 1897 : —

In attendance, December, 1897	164
Left College before the end of the year	29
Left College at the end of the year	40
Entered a College class	28
Total loss	97
Reentered College as Special Students, 1898	67
Newly admitted	100
Total	167
Net gain	3

The number of Special Students is surprisingly constant. For six years, it has neither fallen below one hundred and sixty nor reached one hundred and seventy.

The Freshman class is larger by one student than in 1897 : —

Admitted by examination in 1898	404
Admitted by examination before 1898	25
From a higher class	38
“ the Special Students	3
“ the Lawrence Scientific School	2
Total	472

Thirty-seven persons who took in June some of their Final Examinations for admission did not take the remainder in September.

Besides these, five hundred and sixty-three (eight less than in 1897) took Final Examinations. Of the five hundred and sixty-three, four hundred and forty-eight already had Preliminary certificates; fifty-one divided the examinations between June and September; forty-two took all their examinations in June; and twenty-two took all in September. It is noteworthy that the number of "postponing" candidates has shrunk; that more than half of the successful June candidates were admitted "clear"; and that the September candidates were much less weak than in 1897:—

	Admitted.	Admitted "Clear."	Rejected.
June	408	210	52
September	84	9	19
Total	492	219	71

The five hundred and sixty-three candidates chose their plans of admission as follows:—

Plan (a): All the Elementary Studies and at least two Advanced Studies; sixteen hours of examination	219
Plan (b): All the Elementary Studies except either German or French, and at least three Advanced Studies; seventeen hours of examination	278
Plan (c): All the Elementary Studies except either Greek or Latin, and at least four Advanced Studies, including Advanced Mathematics; eighteen hours of examination	64
Plan (d): All the Elementary Studies except either German or French and either Greek or Latin, and at least five Advanced Studies, including Advanced Mathematics; nineteen hours of examination	2
	<u>563</u>

In the foregoing table the number of hours required by each plan of examination remains as in the table for 1897. As a matter of fact, the time allotted in the examination programme to Elementary German, Elementary French, History, Elementary Algebra, and Plane Geometry has been lengthened in each case by a half-hour; but in all questions of Preliminary certificates, of Postponement, and of admission and rejection, these studies are still rated as if each occupied a single hour. Strictly, plan (a) now occupies eighteen and a half hours; plan (b), nineteen; plan (c), twenty and a half; and plan (d), twenty-one. Though plan (b) still attracts the largest number of candidates, plan (a) has gained at the expense of plan (b); plan (c) has made once more a decided gain; and plan (d) has demonstrated once more its insignificance.

The next table shows the comparative success of the four plans :—

	Admitted.	Rejected.	Percentage of Failure.
Plan (a)	197	22	10
" (b)	247	31	11
" (c)	46	18	28
" (d)	2	..	..
	<u>492</u>	<u>71</u>	

The percentage of failure among the five hundred and sixty-three candidates is a little higher than twelve and a half.

Of the five hundred and sixty-three candidates, four hundred and fifty-six offered Ancient History rather than Modern; ninety-nine, Modern rather than Ancient; one, both Ancient and Modern; and seven, neither. In 1897, Modern History (with two hundred and nineteen candidates against less than a hundred in 1896) appeared to have made a substantial gain; but the figures for 1898 show that the gain was transient and accidental. Such fluctuations confirm an impression that in school History is still treated with little respect; they could scarcely occur in any subject systematically provided for by schools and tutors. Four hundred and twenty-six candidates (one hundred and fourteen more than in 1897) offered Experimental Physics rather than Descriptive. The gain in Experimental Physics is gratifying; for it shows that schools are becoming more generally equipped with laboratories, and that the "scratch" subject, Descriptive Physics, is dying a natural death. That any requirement in Physics is a stumbling-block to some candidates is shown by the fact that fifty-two candidates did not offer Physics at all. In Advanced Studies, as the table of their relative attractiveness makes clear, French and German have gained higher places than they held a year ago :—

1896.	1897.	1898.
1. Latin.	Latin.	Latin.
2. Greek.	Latin Composition.	Latin Composition.
3. Latin Composition.	Greek.	French.
4. Greek Composition.	French.	Greek.
5. French.	Greek Composition.	Greek Composition.
6. Solid Geometry.	Solid Geometry.	Solid Geometry.
7. Log. and Trig.	Log. and Trig.	German.
8. German.	{ German.	Log. and Trig.
9. Chemistry.	{ Chemistry.	Chemistry.
10. Algebra.	Algebra.	Algebra.
11. Analytic Geometry.	Analytic Geometry.	Analytic Geometry.
12. Physics.	Physics.	Physics.

The next table gives the details on which the foregoing table is based :—

Number of candidates offering	1896.		1897.		1898.	
	Per cent.		Per cent.		Per cent.	
Advanced Greek	325	61	332	58.1	312	55.42
Advanced Latin	441	88	474	88.1	464	82.42
Greek Composition	278	52.1	302	52.8	274	48.67
Latin Composition	317	59.4	354	61.0	335	59.8
Advanced German	85	16	93	16.2	141	25.04
Advanced French	256	48	308	53.06	315	55.95
Logarithms and Trigonometry	96	18	107	18.7	125	22.20
Solid Geometry	122	23	128	22.4	142	25.22
Analytic Geometry	16	3	18	3.1	26	4.62
Advanced Algebra	41	7.6	51	8.9	51	9.06
Advanced Physics	7	1.3	9	1.5	6	1.07
Advanced Chemistry	67	12.5	93	16.2	85	15.1

The next two tables show, for each study, the percentage of failure (*A*) in the complete records of the candidates, including the records of their successful Preliminary Examinations, and (*B*) in their records at Final Examinations only:—

(<i>A</i>)	1893.	1894.	1895.	1896.	1897.	1898.
ELEMENTARY STUDIES.						
English	13	9.5	9.2	8	10.9	8.7
Greek	7	6.5	5	9.7	5.4	7.86
Latin	7.5	4	2.5	6.8	4.5	6.75
German	25	22	21	22.2	24.9	17.07
French	11	7	11	9.8	6.2	8.54
History (Ancient)	10.5	6	5	4.8	11.1	9.41
History (Modern)	12	12.1	10.2	9.6	17.1	7
Algebra	10	12.5	14.8	17.4	16.04	14.56
Plane Geometry	20	25	18.6	22.1	15.02	16.11
Physics (Descriptive)	20	34	41	43.1	28.7	27.05
Physics (Experimental)	17	15	11.6	14.1	16.9	12.65
ADVANCED STUDIES.						
Greek	11	17	12	16.1	7.5	12.5
Latin	11	22	23.7	24.5	19.1	15.73
Greek Composition	27	17	19.8	21.6	22.2	16.06
Latin Composition	9	10	12.1	10.2	14.1	15.02
German	21	16.7	17.7	22.2	22.2	14.18
French	21	11	7.3	23.8	15.5	17.78
Logarithms and Trigonometry	40	23	22.2	42.7	27.1	41.00
Solid Geometry	32.5	22.1	24.6	40.2	33.5	20.70
Analytic Geometry	33.5	16.7	30	50	27.7	50
Algebra	11	26	22.0	22.0	22.0	48.14
Physics	50	22.2	0	57.1	55.5	16.67
Chemistry	3.5	11	7	14.8	16.1	15.29

(B) ELEMENTARY STUDIES.			ADVANCED STUDIES.		
	1897.	1898.		1897.	1898.
English	16.06	11.69	Greek	7.7	12.7
Greek	14.7	21.31	Latin	20.5	16.55
Latin	13.8	22.00	Greek Composition . .	33.4	25.58
German	36.8	26.77	Latin Composition . .	20.5	23.82
French	13.5	7.66	German	33.7	20
History (Ancient) . .	17.9	20.98	French	20.1	20.78
History (Modern) . .	22.66	10.61	Log. and Trig. . . .	30	43.7
Algebra	32.1	32.67	Solid Geometry . . .	21.00	21.00
Plane Geometry . . .	26.4	38.44	Analytic Geometry . .	33.3	52
Physica (Descriptive) .	30.	31.52	Algebra	59.5	47.83
Physica (Experimental)	15.9	14.92	Physica	55.5	16.67
			Chemistry	17.4	17.33

Five hundred and ninety-one candidates (thirty-two more than in 1897) took Preliminary Examinations; of whom four hundred and eighty-one (sixteen more than in 1897) received certificates:—

Number of candidates who received certificates for examinations occupying	1893.	1894.	1895.	1896.	1897.	1898.
Less than five hours . . .	3	7	6	2	8	9
Five hours	49	40	56	56	61	55
Six "	83	55	52	90	66	70
Seven "	90	99	75	74	83	84
Eight "	75	102	89	93	80	86
Nine "	58	74	63	64	102	86
Ten "	20	24	18	30	28	31
Eleven "	11	11	20	32	18	32
Twelve "	6	5	3	10	6	14
Thirteen " . . . . .	..	3	3	2	3	3
Fourteen " . . . . .	..	..	1	6	5	3
Fifteen " . . . . .	..	..	..	1	..	..
Sixteen " . . . . .	..	..	1	..	..	..
Received certificates . .	394	519	367	450	465	521
Failed	73	82	82	112	54	110
Total number of candidates	467	601	449	562	559	631

The percentages of failure in Preliminary Studies are, as usual, large: —

ELEMENTARY.			ADVANCED.		
	1897.	1898.		1897.	1898.
English	24.1	24.11	Greek	33.3	58.33
Greek	11.4	8.88	Latin	45.2	40.
Latin	21.	25.04	Greek Composition . .	21.8	37.59
German	31.9	20.09	Latin Composition . .	22.5	27.74
French	23.5	19.21	German	5.	11.11
History (Ancient) . .	21.4	21.01	French	21.3	21.90
History (Modern) . .	30.8	22.22	Log. and Trig.	40.	54.55
Algebra	24.6	24.14	Solid Geometry	45.4	36.11
Geometry	24.2	46.01	Analytic Geom	Not offered	75.
Physics (Descriptive) .	39.1	27.78	Algebra	100.	44.44
Physics (Experimental)	13.6	9.45	Physics	Not offered	00.
			Chemistry	18.1	27.27

In printing statistics of "Credits" won at the examinations for admission to College, I give (A) the "Credits" won this year at Final Examinations; (B) those won last year and this year by the Final candidates of this year; and (C) those won this year at Preliminary Examinations: —

(A) ELEMENTARY STUDIES.			ADVANCED STUDIES.		
	June.	Sept.		June.	Sept.
English	29	1	Greek	21	4
Greek	21	13	Latin	57	7
Latin	12	14	Greek Composition . .	5	1
German	6	12	Latin Composition . .	7	0
French	6	5	German	14	6
History (Ancient) . .	4	0	French	1	3
History (Modern) . .	2	0	Log. & Trig.	1	0
Algebra	16	2	Solid Geometry	12	0
Plane Geometry . . .	1	3	Analytic Geometry . .	1	0
Physics (Descriptive) .	4	0	Algebra	0	1
Physics (Experimental)	22	4	Physics	0	0
	125	61	Chemistry	9	3
				120	25

(B) ELEMENTARY.		ADVANCED.	
English	82	Greek	27
Greek	88	Latin	66
Latin	111	Greek Composition	14
German	44	Latin Composition	16
French	31	German	28
History (Ancient)	10	French	15
History (Modern)	3	Log. and Trig.	3
Algebra	101	Solid Geometry	11
Geometry	8	Analytic Geometry	3
Physics (Descriptive)	4	Algebra	1
Physics (Experimental)	60	Physics	1
		Chemistry	13
	512		202

(C) ELEMENTARY.		ADVANCED.	
English	7	Greek	1
Greek	59	Latin	8
Latin	73	Greek Composition	14
German	24	Latin Composition	4
French	17	German	8
History (Ancient)	12	French	3
History (Modern)	4	Log. and Trig.	0
Algebra	85	Solid Geometry	1
Geometry	3	Analytic Geometry	0
Physics (Descriptive)	1	Algebra	1
Physics (Experimental)	2	Physics	0
		Chemistry	1
	287		38

In 1898, for the first time, candidates might offer themselves for examination according to the "New Definitions" of certain old, established studies. The following table shows the number of persons examined according to the "New Definition" in each newly defined subject. Whatever Preliminary candidates and whatever candidates for the Scientific School may have followed the "New Definitions" are included here:—

NEW DEFINITIONS.

Elementary Greek	76	Advanced German	32
Advanced Greek	23	Elementary French	36
Elementary Latin	78	Advanced French	87
Advanced Latin	40	History*	31
Elementary German	40	Geometry	11

* In History, the presentation of a note-book is the only distinguishing mark of the new definition.

Two significant votes relating to Admission Examinations were passed by the Faculty in the autumn of 1897: —

"Voted, That examinations for admission to the College and the Scientific School, held outside of Cambridge, may be committed to the charge of suitable persons who hold no appointment in the University."

"Voted, To amend the statement of the Catalogue in regard to admission examinations outside of Cambridge, so that it shall read: 'The College will ordinarily conduct the admission examinations in June in any school or city where a sufficient number of candidates shall present themselves for examination, provided that the school or city be not within easy reach of one of the regular places of examination,' etc."

The principle of the first of these votes had already been recognized in the examinations at San Francisco and at Portland, Oregon; last summer it was applied to the examinations at Pasadena (a new place), Omaha, Denver, Kansas City, and Minneapolis. In accordance with the second vote, examinations were established at Pasadena, Youngstown, and Pottstown.

In the autumn of 1896, the Board of Overseers had suggested to the Faculty that every student admitted to College ought to write English so well as to make prescribed College courses in English Composition unnecessary. Years may pass before the College can realize this not quite Utopian dream; but it may at least hasten the realization by promptly relieving from prescribed English all those whose writing is good. This it is doing through three votes of the Faculty: —

"Voted (unanimously), That, in 1898 and thereafter until further notice, a candidate for admission who has passed the examination in Elementary English with a grade of A or B may take a second examination which, if passed with a grade of A or B, shall exempt him from the prescription of English A [Prescribed Freshman English]."

"At this examination, which will be held in September only, a candidate will write one or more compositions on topics to be selected by him from a list comprising subjects in English Literature, the Classics, French and German authors, History, and Science. The examination will occupy two hours."

"Voted, That a student who has attained Grade A or B in English A, taken as a prescribed course, shall be exempted from the prescription of English B [Prescribed Sophomore English] or English BC [Prescribed Second-Year English in the Lawrence Scientific School]."

"Voted, That students in English C [Prescribed Junior English] who have attained Grade A or B in their work up to the third forensic, may be excused from writing the third forensic."

These votes have some bearing on the shortening of the College course, since they reduce in some cases the requirements for the degree.

The members of the Administrative Board of Harvard College for 1897-98 were: The Dean of the College; Professors Greenough, Bartlett, de Sumichrast, White, Davis, Channing, Grandgent, and Sabine; Doctors Torrey, Coolidge, Davenport, and Gulick; and Messrs. Nichols, Gardiner, and Hurlbut.

In the course of the year, the Board closed the probation of one Senior, one Sophomore, and four Freshmen; the Faculty dismissed, for disorderly conduct, one Freshman and one Special Student, who were afterward readmitted, and expelled one Senior for presenting a forged certificate. One Senior, one Junior, three Sophomores, five Freshmen, and three Special Students were required or persuaded to leave College; one Freshman was suspended for drunkenness; one Junior, one Freshman, and one Special Student were suspended for handing in illegitimate written work. The penalty of posting, which I have fully discussed in previous reports, was used early in the year; but, in deference to the strong feeling against it in the Faculty itself, a modified penalty was devised by a committee appointed for the purpose and was accepted by the Faculty. The name of the offending student and a statement of the offence are to be sent to every member of the Faculty; and announcement of the offence and of the penalty (without the offender's name) is to be made in the class in which the offence is committed. Any offence which, in the interest of the student public, should be made known may be made known by the Faculty at the request of the Dean of the College.

The Board entered on no new undertaking but spent much of its energy throughout the year in adjusting its relations with the Faculty of Arts and Sciences.

As usual, the Faculty, at the beginning of the academic year, granted leave of absence from the College to a considerable number of Seniors who, if the requirements for the degree are to be reckoned by courses on'y, had completed or nearly completed those requirements. More than half of the thirty-three students to whom this leave of absence was given had to their credit in College eighteen courses (the number required for the degree of A.B.); the others, mostly as members of the Law School or of the Medical School, were required to make good their deficiency in College work. These latter students, as has been said, are committed to an unfortunate service of two masters: they are not welcome in College elective courses, for there they seem half-hearted and perfunctory; they are not welcome in the Law School, for there they seem not quite

detached from the College and unable to give their full strength to the Law. Everybody recognizes the disadvantage of this divided allegiance, and is restless in consequence; but nobody has yet devised a remedy that commends itself to a large majority of the Faculty. Meantime we continue to feed the unpromising notion that College studies are to be counted off as rapidly as possible. I can only hope that before long we shall devise and accept a scheme which will do away with mixed allegiance, postponed A.B's, postponed A.M's, the admission of undergraduates to the Graduate School, and all other transitional devices that cheapen education.

A new objection to our always illogical practice of first letting a student complete the work for the A.B. in three years and then holding back the degree till the end of a fourth year has appeared in the requirements for admission to the New York Bar. An energetic man, it is said, may prepare himself for the New York Bar in two years; but no one may be admitted to that bar until two years after the actual date of his A.B. degree. If, then, a student of Harvard College crowds four years' work into three but not so successfully as to win the degree in that time, gets leave of absence for the fourth year, and fits himself in that year and in the year after it for the New York Bar, he must wait still another year, however well prepared he may be, since his College degree, though all the work required for it was done two years before, is dated, and was actually received, only one year before. The hardship of such a case is evident. For the sake of an early start in active life, the student has accepted all the disadvantages of a hurried College course, and at the end of his work is deprived by rules the reasons for which he does not see, of all the advantages.

Thirty-five students, against twenty-three in 1896-97, won a position in the First Group of holders of scholarships:—

CLASS.	NAME.	SCHOLARSHIP.	HOMR.	SCHOOL.
'98	Frederick Sherman Arnold	Matthews	Poughkeepsie, N.Y.	Poughkeepsie Military Academy.
'98	William Wilson Baker	Ruluff Sterling Choate	Roxbury	Boston Latin School.
'99	Clement Lincoln Bouvé	Bowditch	Cambridge	Roxbury Latin School.
'98	Almy Morrill Carter	John Harvard	Woburn	Woburn High School.
'00	William Bayard Cutting	"	New York, N.Y.	Groton School.
'99	Wallace Brett Donham	Price Greenleaf	Rockland	Rockland High School.
'98	William Edwin Dorman	Bowditch	Lynn	Berkeley School, Boston.
'00	Durant Ford Drake	John Harvard	Boston	Boston Latin School.
'00	Arthur Drinkwater	"	Andover	Phillips Academy, Andover.
'99	John Wells Farley	Price Greenleaf	Cambridge	Roxbury Latin School.
'98	Edward Winslow Fox	John Harvard	Portland, Me.	Phillips Academy, Exeter.
'98	Samuel Tufts Frost	"	Roxbury	Boston Latin School.
'99	Archibald Victor Galbraith	Bowditch	Springfield	Springfield High School.
'98	Francis Paul Garland	Class of 1856	Somerville	Somerville Latin School.
'98	Ernest Theodore Gundlach	Morey	Chicago, Ill.	University of Chicago. Chicago, Ill.
'98	William Henry Paine Hatch	Matthews	South Hartford, N.Y.	rd, Conn.
'00	Charles Brooks Hersey	Price Greenleaf	Chelsea	School.
'98	Samuel Hudson Hollis	John Harvard	Lynn	Boston Latin School.
'98	Carl Newell Jackson	Bowditch	Dorchester	Cutler's (New York City) School.
'98	Gustav Hermann Kinnicutt	John Harvard	New York, N.Y.	Salem High School.
'99	Welles Meriam	Price Greenleaf	Salem	F. B. Brandt (Private Tutor).
'00	William Morrow	"	Philadelphia, Pa.	Lynn Classical High School.
'98	Guy Newhall	Class of 1856	Lynn	Lynn Classical High School.
'98	Raymond Tasker Parke	John Harvard	Lynn	Roxbury Latin School.
'99	Langdon Pearse	"	Roxbury	Portsmouth (N. H.) High School.
'98	Hazen Pierce Philbrick	"	Cambridge	Cutler's (New York City) School.
'98	Beverly Randolph Robinson	"	New York, N.Y.	ol.
'98	Herman Foster Robinson	"	New York, N.Y.	
'98	Ralph Stout	Richard Augustine Gambrill,	Brooklyn, N.Y.	
'99	James Butler Studley	Price Greenleaf	Rockland	
'99	Carleton Ames Wheeler	"	Cambridge	
'99	Edwin Bidwell Wilson	Bowditch	Cambridge	
'99	Alvin Walter Wise	John Harvard	Chicago, Ill.	Cambridge Latin School. [bridge.
'99	Samuel Lamson Wonsou	"	Everett	Gloucester High School.
'00	Henry Aaron Yeomans	"	Spokane, Wash.	Spokane (Wash.) High School.

Only twelve members of the First Group for 1896-97 were still undergraduates; and of these twelve eight reappear in the First Group for 1897-98. The thirty-five members of this group represent twenty-six preparatory sources: the Boston Latin School appears four times in the list; the Roxbury Latin School three times; Mr. Cutler's (New York) School, three times; the Lynn Classical High School twice; and the Rockland, Massachusetts, High School, twice. The number of states represented is the same as last year: Massachusetts contributes to the group twenty-three members; New York, seven; Illinois, two; Maine, Pennsylvania, and Washington, one each. The proportion from Massachusetts is larger than last year, Lynn alone contributing four students.

As the establishment of John Harvard Scholarships had proved successful, the Faculty voted to carry the principle of those scholarships to its logical conclusion:—

“Voted, On the recommendation of the Committee on Scholarships and Other Aids to Undergraduates, that the principle of the John Harvard Scholarships be extended to the Second Group of holders of scholarships.”

“Voted, On the recommendation of the same committee, that scholarships without stipend in the Second Group be known as ‘Harvard College Scholarships.’”

Early in the second half-year the work of many students was broken into by the excitement of threatening war, and later by war itself. At such times a College should do what it can to prevent inexperienced boys from rushing to battle with no thought of duty to parents; but a College should not attempt to cool a young man's love of his country, even though it may question whether the government of that country is wise. Nor should a College try to dull that eager spirit which is the glory of youth and too often of youth alone. The most resolute opponent of the war, the most cautious counsellor of young men, might well have felt some shame had there been in the front ranks no son of Harvard College, and must rejoice that the Alma Mater was represented well. Nor could any one talk much with the students who enlisted, without perceiving that beneath the spirit of adventurous daring which marks the youth of every nation not utterly degenerate was the conviction that, whenever and for whatsoever the nation called, her young men should “give freely and eagerly all that they had or hoped for to their country and to their fellow men.” It was one thing to offer a life for the Union in 1861, and another to offer it for a war with Spain in 1898: yet if offering life seemed a duty, the very absence of a cause that every man could recognize as great enhanced the self-sacrifice.

Twenty Harvard soldiers who would naturally have received the degree of A.B. had they finished the work of the year, received it while absent in army or navy service. No Faculty could safely give a professional degree, with a warrant of technical skill, to a student who had not taken his final tests; but the case is different with that degree which, though the first and the easiest to get, is always loved the best—the degree which admits a “youth of promise to the fellowship of educated men.”

One of the twenty soldiers who received the degree, Roy Walter Stover, and one undergraduate, Nathaniel Brown Adsit, have died in the service. Each did his work in College well and bore a good name; and each, among the hundreds of graduates and undergraduates, living and dead, who served in this war, has done his part to keep good the name of Harvard College.

L. B. R. BRIGGS, *Dean.*

THE LAWRENCE SCIENTIFIC SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—During the academic year 1897-98, the conditions of the Lawrence Scientific School, so far as they need mention in this report, were as follows:—

The condition of the School was satisfactory both as regards the numbers registered and the grades attained by the students. As will be seen from the subjoined table, the rate of increase established in the preceding year has been nearly maintained, while the proportion of persons registered as special students has notably declined. Of those now ranked as unmatriculated, the greater number are so placed because they are not candidates for a degree, but are pursuing certain courses as preparation for special employments.

REGISTRATION BY CLASSES.

	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898 to Nov. 1
Fourth-year Class . .	4	1	6	11	7	11	20	29	30	30	37	41
Third-year Class . .	0	1	1	7	9	9	30	39	27	41	44	60
Second-year Class . .	1	0	5	12	13	32	47	46	73	92	106	104
First-year Class . . .	1	4	15	18	19	48	45	71	106	129	132	150
Specials	11	29	38	53	70	81	100	104	104	76	91	63
Total	30	35	65	98	118	181	280	308	340	368	410	418

The condition of the several classes is, as may be seen by comparing the number of students in the successive years, not altogether satisfactory; since it is evident that too few are able to win promotion from year to year, and finally to obtain the degree. The rules of the Administrative Board concerning promotions are severe, and have been strictly enforced, with the result that only about one third of those who are admitted to regular standing are allowed to graduate. In some measure, the relatively small proportion of the graduating to the entering class is due to the fact that the students in this School have never been accustomed to attach the same importance to a diploma as do those in the other departments of the University,

or in other colleges. The greater number are seeking an education which may fit them for active life. These men are always ready to weigh the value of some advantageous position offered them against the profit they may expect to find in further schooling. As the average age of the men in the School is considerably greater than that of College students, this course is perhaps not to be condemned.

As regards the entrance examinations, the following table exhibits the important changes which have taken place in the last year. It will be observed that there has been a tolerably steady increase in the number of candidates at the preliminary and the final examinations. Taken in connection with the table showing the attendance, it will be observed that there is not a very clear connection between the number presenting themselves for the entrance tests and those enrolled. It is evident that some students use the entrance examinations to prove their accomplishment in the fitting schools. From all that has been learned, the certificate of admission into this School is very rarely used to secure a place in any other. A considerable number of those admitted come from other reputable institutions. In practically all instances they are not admitted *ad eundem*, but have to be graded as of a lower class than that to which they had elsewhere belonged.

REGISTRATION FOR ADMISSION EXAMINATIONS.

	Preliminary.	Final.	Total.
1893	8	68	71
1894	84	97	181
1895	51	171	222
1896	37	221	258
1897	59	184	243
1898	78	184	267

It is the purpose of the Administrative Board to scrutinize the established courses of study in order to find out how to lighten the required work, which in some of the programmes is evidently too heavy for any but the more vigorous. Much has already been done to diminish the term work in the Engineering programmes by placing all the courses of field surveying and shopwork in the summer vacation. Heretofore the course in Surveying has been carried on partly in term time and partly in the long vacation: hereafter it will be given altogether in the months of August and September. This reduction of the free time of the year by almost two months will probably seem a deprivation alike to students and their parents; but as the work is done in the open air in a very wholesome place, it will

not add to the strain the students have to endure. Its effect in diminishing the tax on their time during the regular terms will be very advantageous.

The call for soldiers to serve in the war against Spain led to the enlistment of twenty-five of the 380 students who were in the School at the time when hostilities began. The Dean and Secretary, both of whom had in their youth some experience in caring for men, endeavored to persuade all those who were evidently not fit for military duty to adhere to their course of education. The result was that fewer went than would otherwise have gone. There have fortunately been no deaths among those who enlisted, though hard service came to many of them, and some are still invalided. It is not unlikely that the care which for some years has been given to the physical condition of the young men served to fit them for the trials of a soldier's life. The proportion of those who enlisted from the Lawrence School was rather greater than from other departments of the University. It was about eight per cent. of the whole number, or about six times as great as it would have been if the calls had been filled by drafts on the able bodied men of the country.

With one exception, the needs of the several departments of the School remain as they were described in the last report made to you. The work in Mining and Metallurgy has been well provided for by the allotment to the department of the edifice on Jarvis Field, formerly known as the Carey Building. The structure is now being remodelled for its new uses. It will afford room for the Mining and Metallurgical laboratories, as well as two good lecture rooms and a library room. Until the students in this department shall exceed one hundred, these quarters are likely to suffice for the needs of the technical work.

The courses in Civil, Mechanical, and Electrical Engineering are now sorely pressed for room; especially the classes in Drawing, and those in laboratory work in Electricity. So, too, in Architecture the quarters, though in some regards satisfactory, are remote from the central library and from the Fogg Museum. Unless some provision is soon made for the accommodation of the growing classes in Engineering, it may be necessary to exclude from them the students who are registered in the College. This step would be most regrettable, for the reason that it would tend to retard the development of a system, now well advanced, by which students of the College freely share in the instruction given at the School, excepting some of the more technical work, thus making themselves ready for graduation in Science as well as in Arts at the end of five years of study in the

two schools. If the University is to keep what it has gained of profitable relation to Engineering Science, and to extend its work by providing the country with engineers of the highest order of training, it must need meet these demands for the better accommodation of students in engineering.

During the year a change has been made in the programme of the four years' course in General Science. Students following this programme will hereafter be required to pursue designated studies for the first year only. In the three subsequent years each student will follow a course of study selected by himself and approved by that Division or Department in which he is registered. These fields of work as now designated are as follows : Physics, Chemistry, Geology, Biology, Civil Engineering, Electrical Engineering, Mechanical Engineering, Mining and Metallurgy, and Architecture. The object of this change is to provide for a wide yet carefully guarded method of election, the choice being made in conference with advisers who are competent to pronounce judgment as to the adequacy of the plan of study which the student proposes to follow. It is believed that by this method the adaptation of this general course to the varied needs of those who enter it will be much improved. It gives, moreover, an opportunity for youths to ascertain, in a tentative way, their fitness for peculiar groups of studies. It is probable, for instance, that a young man who enters in General Science, taking a course that is satisfactory to the Department of Engineering, may in time find that he desires the full professional training in that subject, in which case, possibly without the loss of much time, he may be able readily to attain that end.

The discipline of the School is good : it has been easily maintained, for it has had the sympathetic coöperation of nearly all the students. During the year the penalties inflicted have been as follows : —

- 27 students were put on probation for neglect of work ;
- 73 students were put on probation at the end of the term for being dropped from their classes ;
- 8 probations were closed for continuous neglect ;
- 1 student was suspended for cheating at an examination.

It should be noted that the penalty of probation is much more freely used in this School than in the College. It is applied not only to all men who have not been advanced at the end of the year because of some deficiencies in their studies, but also to all who at any time appear likely thus to fail. It is intended to indicate to the student to whom it is applied that he is not adequately meeting the requirements of the School.

The new requirements for admission to the School begin to go into operation in 1899. It may be expected that the immediate effect of the system will be to somewhat reduce the attendance. The system will, however, have the advantage that it will tend to make an end of the competition for students with other technical schools, leaving to this School those only who because of their native ability or good training are able to meet a test substantially equivalent to that required for entrance to Harvard College. The year or more of time thus saved for work such as should be done in a University will enable the students of this School to attain a broader culture than they can now win here or elsewhere. This gain will repay any loss of numbers that the new requirements may entail.

N. S. SHALER, *Dean.*

THE GRADUATE SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—As Dean of the Graduate School, I have the honor to present my report on the condition of the School in the academic year 1897-98.

The members of the Administrative Board for the year were Professors Norton, Farlow, Jackson, B. O. Peirce, von Jagemann, Hart, Ashley, Kittredge, and Münsterberg, and the Dean of the School. Professor Münsterberg took the place of Professor Smith, who was absent in Europe. The Secretary of the Board was Professor Kittredge.

The Board held nine meetings, on an average one a month with additional meetings in October and June. The business of the Board consisted chiefly of the regulation of the admission of students to the School, of the approval of courses for the degree of Master of Arts, of action upon various petitions from students, and of the consideration of questions of policy and practice in regard to the higher degrees. Certain votes passed by the Board will be given on a later page. No cases of discipline have come before the Board within the last three years.

The character and condition of the School are set forth from various points of view in the following Tables, which show in succession:—

- I. Number and classification of students (resident and non-resident; students doing full or partial work; fields of study; length of connection with the School; holders of Bachelor's and of the higher degrees): 1895-96, 1896-97, 1897-98.
- II. Colleges and Universities represented, with Degrees held: 1897-98.
- III. Birthplaces of Graduate Students: 1895-96, 1896-97, 1897-98.
- IV. Recommendations for Degrees in 1896, 1897, and 1898.
- V. Departments in which the Higher Degrees were conferred in 1898.
- VI. Age of Masters of Arts, Masters of Science, Doctors of Philosophy: 1898.
- VII. Fellowships and Scholarships: numbers of applicants and appointees in 1896-97, 1897-98, and 1898-99.
- VIII. Recipients of higher non-professional degrees from Harvard University (on examination): 1873-98.
- IX. Doctors of Philosophy and of Science, classified according to the subjects in which the degrees have been conferred: 1873-98.

STUDENTS.

The number of students registered in the School in 1897-98 was two hundred and ninety-three. This does not include a few persons who were in the School for a period of less than one month at the opening of the year; they either withdrew or entered another department of the University.

TABLE I.—NUMBER AND CLASSIFICATION OF STUDENTS.

	1896-97.	1897-98.	1898-99.
Resident Students doing full work in the School for the whole academic year	175	194	171
Resident Students not doing full work or not working for the whole year as resident students . . .	105	96	107
	— 280	— 290	— 278
Non-Resident Students holding fellowships	18	14	15
Non-Resident Students not holding fellowships . .	6	2	—
	— 19	— 16	— 15
Students whose studies chiefly lay in *			
I. Semitic Languages and History	6	4	2
II. Ancient Languages (Classics and Sanskrit) . .	39	37	39
III. Modern Languages (Including English Language and Literature and Comparative Literature)	74	59	71
IV. Philosophy (including Education and Teaching)	42	44	45
V. History and Political Science	55	58	43
VI. The Fine Arts (including Architecture) . . .	2	2	1
VII. Music	0	0	1
VIII. Mathematics	23	24	18
IX. Physics	8	12	16
X. Chemistry	12	17	17
XI. Natural History	29	31	31
XII. American Archaeology and Ethnology . . .	1	1	4
Unclassed Students	8	7	5
	— 299	— 306	— 293
First-year Students	157	156	149
Second-year Students	81	71	73
Third-year Students	36	49	43
Fourth-year Students	18	21	21
Students in a fifth or later year	7	9	7
	— 299	— 306	— 293
A.B.'s and S.B.'s of Harvard University and of no other institution	109	112	90
A.B.'s and S.B.'s (and holders of similar degrees) of other institutions and also of Harvard University	38	36	41
Students not holding the Harvard degree of A.B. or S.B.	152	158	162
	— 299	— 306	— 293
Students holding the Harvard degree of A.M., Ph.D., or S.D.	91	95	96
Students holding the Harvard degree of A.B. or S.B., but not of A.M., Ph.D., or S.D.	88	89	80
Students holding no Harvard degree in Arts, Philosophy, or Science	120	122	117
	— 299	— 306	— 293

* For detailed statistics as to the number of Graduate Students enrolled in the various courses of instruction offered by the Faculty of Arts and Sciences, see the Report of the Dean, pp. 64-65.

Admission to the Graduate School is ordinarily granted to holders of the Bachelor's degree of good colleges, and to a few other persons of maturity who give evidence of an equivalent education. Recent graduates of colleges where the course of study would not secure admission at least to the Senior class of Harvard College, with or without conditions, and men who come from unknown institutions, are commonly not admitted to the Graduate School, but are expected to seek admission as Undergraduates, or as Special Students, in Harvard College. The colleges and universities that were represented in the School in 1898 are given in Table II.

The foregoing Table exhibits the usual classification of the Students of the School, and is given for convenience of comparison for the three successive academic years 1895-96, 1896-97, 1897-98.

Of the Resident Students two hundred and forty-one were in attendance throughout the whole year. Of this number one hundred and seventy-one—including all holders of fellowships and scholarships—were engaged in what is defined as a complete year of work (four courses of advanced grade or their equivalent), or were doing a larger amount of work. Seventy of the number in residence throughout the year were doing partial work, which ranged from half a course (in two instances) to three and one-half courses. Several of this class were engaged in teaching or in other professional occupations in the vicinity of Cambridge, and were devoting only a part of their time to study in the Graduate School. Some of them had no intention of becoming candidates for a degree. Others hoped to obtain one of the higher degrees for two or more years of work upon completing an approved programme of studies. Of the remaining thirty-seven Resident Students twenty-one entered after November 1, 1897, and sixteen withdrew before the close of the year.

It will be observed that for the first time since the establishment of the Graduate School the number of students is less than in a preceding year. This decrease in 1897-98 was confined to New England men and to graduates of Harvard College. The large increase in the current academic year (1898-99), with a registration at this date of three hundred and twenty, shows that this loss was only temporary.

The class of Non-Resident Students included all holders of traveling fellowships and other fellowships held by students away from Cambridge; in 1897-98 it included no other persons. The privilege of Non-Resident membership is carefully guarded. It is reserved for men who have already been in residence at the University for a suitable time. The work of Non-Resident Students, whether holders

of fellowships or not, is carried on under the constant supervision of the Departmental committees under which the students are working, and all Non-Resident Students are required to keep in communication with the Dean of the School.

The second division of this Table indicates the several fields of learning and science in which the work of the students lay. Classification here is not always easy, since in the case of many students the work of each lies, in part at least, in more than one Department—a fact that cannot be noted in the Table. Detailed information as to the choice of studies of Graduate Students in the several Departments may be obtained by a reference to the statistics given in the Report of the Dean of the Faculty of Arts and Sciences. The steady attraction which several of the great departments of learning exercise upon advanced students is apparent from the Table. In 1894-95 the subjects, as arranged according to the number of students that pursued them, were—

Modern Languages,	Chemistry,
History and Political Science,	Physics,
Philosophy,	Semitics,
Classics and Sanskrit,	Fine Arts,
Natural History,	Music,
Mathematics,	American Archaeology and Ethnology.

This has been, at least for the first eight subjects in the list, the order in each successive year since 1894-95 — 1895-96, 1896-97, 1897-98 — the only change being in the relative place of the last four subjects in the list.

An inspection of the next division of Table I shows that the proportion of students remaining in the School for the second and third year has not appreciably changed. As in the past, about one-half of the members of the School have been in the School but one year, and about two-thirds of these obtained the degree of Master of Arts at the close of the year. About one-quarter have been in the School for two years, while about the same number have been in it for three or more years. The proportion of men, however, who proceed to the higher degrees is constantly increasing.

The fourth division of Table I shows in general the extent to which the School draws its membership from graduates of other institutions. For detailed information upon this point Table II should be consulted. About sixty per cent. of the students of the School held a degree from Harvard University, and of these about forty-three per cent. of the whole number were Bachelors of Arts, and about two per cent. were Bachelors of Science.

Tables II and III are mutually supplementary and exhibit the extent to which different parts of the country and different higher institutions are represented in the Graduate School. In the former are given the various colleges and universities, and the professional and technical schools, whose graduates were members of the School in 1897-98, together with the degrees these persons held and the number of different persons from each institution.*

These Tables show that Harvard University continues to draw its Graduate Students from the whole country without distinction, from Canada, and to a certain extent from Europe. The representation from Canada has decidedly increased, being double what it was in 1896-97. The colleges and universities that were represented by five or more persons are (arranged in order according to the number of their graduates in the School): Harvard University; University of Kansas; Brown University; University of California, Dartmouth College, and the University of Vermont, with the same number; Amherst College, Northwestern University, Oberlin College, Princeton University, University of Toronto, Wesleyan University, and Western Reserve University, with the same number. Upon comparison with the record of 1896-97 it will appear that the representation of Brown University, of Princeton University, and of the University of Toronto has distinctly increased. Eight members of the School hold degrees from European universities, of whom three were from French, three from German, and two from British, universities. Sixteen students had previously graduated from Canadian universities or colleges. The most common degree was that of Bachelor of Arts, — next that of Master of Arts. Of the three hundred and fifteen Bachelors two hundred and sixty were Bachelors of Arts, and twenty-nine were Bachelors of Science. There were six Masters of Science and fifteen Doctors of Philosophy in the School, but no Doctors of Science. The membership of the School contained very few holders of professional degrees, — less than fifteen.

* Nine of the colleges and universities upon this list were further represented in Harvard College by recent graduates (twelve in number), who preferred to enter the Senior class as candidates for the degree of Bachelor of Arts rather than enter the Graduate School. It is the policy of the Administrative Board to advise candidates for the degree of Bachelor of Arts, especially if they are recently graduated, to seek admission to the Senior class.

TABLE II.—COLLEGES AND UNIVERSITIES, WITH DEGREES HELD.

	A.B.	S.B.	LITT.B.	Ph.B.	A.M.	S.M.	Ph.D.	D.B.	LL.B.	M.D.	No. De- grees.	No. Per- sons.
Acadia University, N. S.	4	.	.	.	.	.	.	.	.	.	4	4
Albion College, Mich.	1	.	.	.	1	.	.	.	.	.	2	1
Allegheny College, Pa.*	2	.	.	.	1	.	.	.	.	.	4	2
Amherst College, Mass.	5	.	.	.	1	.	.	.	.	.	6	5
Bates College, Me.	1	.	.	.	.	.	.	.	.	.	1	1
Beloit College, Wis.	2	.	.	.	.	.	.	.	.	.	2	2
Besançon, Académie de, France	.	1	1	.	.	.	.	.	.	.	2	1
Boston College, Mass.	1	.	.	.	.	.	.	.	.	.	1	1
Boston University, Mass.	2	.	.	1	.	.	.	.	.	.	3	2
Bowdoin College, Me.	3	.	.	.	1	.	.	.	.	.	4	3
Brooklyn Polytechnic Institute, N. Y.	1	1	.	.	.	.	.	.	.	.	2	2
Brown University, R. I.	6	.	.	1	.	.	.	.	.	.	7	7
California, University of	2	3	.	2	.	2	.	.	.	.	9	6
Chicago, University of, Ill.	.	.	.	1	1	.	.	1	.	.	3	3
Cincinnati, University of, O.	.	.	1	.	.	.	.	.	.	.	1	1
Colby University, Me.	2	.	.	.	1	.	.	.	.	.	3	2
Columbia University, N. Y.	1	.	.	.	.	.	.	.	1	1	3	3
Columbian University, D. C.	.	.	.	.	1	.	.	.	.	.	1	1
Cornell College, Ia.	1	.	.	1	.	.	.	.	.	.	2	2
Cumberland University, Tenn.	1	.	.	.	1	.	1	.	.	.	3	1
Dalhousie University, N. S.	2	.	.	.	.	.	.	.	.	.	2	2
Dartmouth College, N. H.*	3	1	2	.	2	.	.	.	.	.	9	6
Drury College, Mo.	1	.	.	.	.	.	.	.	.	.	1	1
Earlham College, Ind.	1	.	.	.	.	.	.	.	.	.	1	1

[illegible]

* See note on page 133.

TABLE II. — CONTINUED.

	A.B.	S.B.	Litt.B.	Ph.B.	A.M.	S.M.	Ph.D.	D.B.	LL.B.	M.D.	No. De- grees.	No. Per- sons.
Midland College, Kan.	1	.	.	.	.	.	.	.	.	.	1	1
Minnesota, University of	.	.	1	.	.	.	.	.	.	.	1	1
Mississippi College	1	.	.	.	.	.	.	.	.	.	1	1
Mt. Allison University, N. B.	3	.	.	.	.	.	.	.	.	.	3	3
Nebraska, University of	1	.	.	.	1	.	.	.	.	.	2	1
New Brunswick, University of	1	.	.	.	.	.	.	.	.	.	1	1
North Carolina, University of*	1	.	.	1	.	.	.	.	.	.	3	2
Northwestern University, Ill.	2	.	.	2	1	.	.	.	.	.	5	5
Oberlin College, O.	4	.	.	1	2	.	.	.	.	.	7	5
Ohio Wesleyan University	3	1	.	.	2	.	.	.	.	.	6	4
Paris, Faculté des Lettres de*	.	.	1	.	.	.	.	.	.	.	3	1
Pennsylvania, University of	.	1	.	.	.	.	.	.	.	.	1	1
Princeton University, N. J.	1	.	.	.	1	.	.	.	.	.	6	5
Rennes, Académie de, France	.	.	1	.	.	.	.	.	.	.	1	1
Rochester, University of, N. Y.	1	.	.	.	.	.	.	.	.	.	1	1
Rocky Mountain University, Col.	.	.	.	.	.	.	.	.	.	1	1	1
South Carolina College	1	.	.	.	1	.	.	.	.	.	2	1
Strassburg, University of, Germany	.	.	.	.	.	.	1	.	.	.	1	1
Syracuse University, N. Y.	1	.	.	.	.	.	.	.	.	.	1	1
Texas, University of	.	2	.	.	1	1	.	.	.	.	4	2
Toronto, University of, Ont.	5	.	.	.	2	.	.	.	1	.	8	5
Trinity College, Conn.	2	.	.	.	.	.	.	.	.	.	3	2
Tufts College, Mass.	2	.	.	.	1	.	.	.	.	.	3	2
Union College, Pa.	1	.	.	.	1	.	.	.	.	.	2	1

[illegible]

* Besides the degrees enumerated above, the following were held by one or two persons, as indicated: Agrégé d'Anglais and Licencié-ès-Lettres, Faculté des Lettres, Paris; C.E. (2), Allegheny College, Pa., and Dartmouth College, N. H.; E.B. (2), Union College, N. Y., and Pennsylvania State Normal School, West Chester; Heb.B., Hebrew Union College, O.; M.E., Stevens Institute of Technology, N. J.; Ped D., Wooster University, O.; Pharm.Gr., Chicago College of Pharmacy, Ill.; Ph.M., University of North Carolina, S.D.B., Missouri State Normal School, Warrensburg. — The University of the City of New York and the University of Virginia were each represented by one Non-Graduate; Harvard, by eight (mostly past Seniors on leave of absence from Harvard College, who had completed wholly or in large part the requirements for the A.B. degree). There were, further, in the School one Graduate each of Andover Theological Seminary, Mass.; the New Church Theological Seminary, Mass.; and the Southern Baptist Theological Seminary, Ky.; and two Graduates of the United States Naval Academy, Md.

TABLE III. — BIRTHPLACES OF GRADUATE STUDENTS.

	1895-96.	1896-97.	1897-98.
Students born in the New England States	181	141	121
Students born in other Northern States east of the Mississippi River	85	86	89
Students born in Southern States east of the Mississippi River	19	18	19
Students born in States west of the Mississippi River . .	25	25	26
Students born in the Dominion of Canada	16	17	18
Students born in other foreign countries	23	24	20
Total number of students	299	306	293

This Table shows that only about forty per cent. of the students were of New England birth, and that in 1897-98, as compared with previous years, the proportion of students born in other parts of the United States, and in Canada, has slightly increased.

The School has lost one member by death within the present year. Mr. Ralph Burnell Calhoun Hicks, a distinguished student of Sanskrit, and the holder of a University scholarship, died of consumption on February 7, 1898.

The late Cuban War affected only slightly the membership of the School. Before the close of the year eight registered students entered the military or naval service of their country, namely, Messrs. H. Bancroft, B. R. Curtis, A. S. Cushman, F. Heilig, W. J. Miller, S. Paine, T. D. Parker, and M. B. Peugeot. Of these Mr. Bancroft completed his studies sufficiently to be recommended for the degree of Master of Arts at Commencement, and Mr. Cushman was promoted to the degree of Doctor of Philosophy at the same time.

DEGREES.

One hundred and thirty-eight persons were recommended * for the higher degrees at Commencement, 1898. The details are found in the following Table, which gives, first, the number of students in

* The number of persons recommended, as here given, and that of the men who actually receive the degree, as published on the Commencement Programme and in the Annual Catalogue, do not always agree. In each year a few of the candidates recommended do not, for various reasons, receive the degree at once. Ordinarily the degree is in these cases conferred in a later year, "as of" the year in which the recommendation was made.

the Graduate School recommended by the Faculty of Arts and Sciences for any degree, and the number of other students recommended for the degree of Master of Arts in the three years 1896, 1897, and 1898. In the second part of the Table, all persons recommended for the higher degrees (A.M., S.M., Ph.D., and S.D.) are classified with reference to their previous graduation as Bachelors of Arts or of Science.

The degree of Master of Science was conferred for the first time at Commencement, 1898.

TABLE IV.—RECOMMENDATIONS FOR DEGREES IN 1896-98.

	1896.	1897.	1898.
Graduate students recommended for A.B.	16	14	18
Graduate students recommended for A.M.	83	94	91
Graduate students recommended for S.M.	0	0	5
Graduate students recommended for Ph.D.	18	25	25
Graduate students recommended for S.D.	0 117	1 134	0 139
<hr/>			
College Seniors of a preceding year, recommended for A.M. on work done in senior year	7	6	9
Professional students recommended for A.M. on special courses of study	8	13	7
Professional students recommended for Ph.D. on special courses of study	0	0	1
Professional students recommended for A.M. with a professional degree	0 15	1 20	0 17
<hr/>			
Total of the above list	133	154	156
Deduct Graduate students receiving A.B.	16	14	18
<hr/>			
Total number recommended for A.M., S.M., Ph.D., and S.D.	116	140	138
<hr/>			
Harvard Bachelors of Arts or Science, not pre- viously graduated elsewhere	50	57	42
Harvard Bachelors of Arts or Science, previously graduated elsewhere	21	24	21
Students not Harvard Bachelors of Arts or Science	45 116	59 140	75 138
<hr/>			

The next Table indicates the departments or fields of study in which chiefly lay the work of the candidates for the degree of Master of Arts, of Master of Science, and of Doctor of Philosophy in 1898.

TABLE V.—DIVISIONS AND DEPARTMENTS IN WHICH THE HIGHER DEGREES WERE TAKEN IN 1898.

DIVISION.	DEPARTMENT.	DEGREES.		
		A.M.	S.M.	PH.D.
I. Semitic Languages and History				1
II. Ancient Languages :				
	Indo-Iranian Languages			
	Classical Philology	11		3
	Total in Ancient Languages	— 11		— 3
III. Modern Languages :				
	English	14		5
	Germanic Languages and Literatures	5		
	French	2		
	Italian and Spanish			
	Germanic and Romance Philology	1		1
	In more than one Department	8		
	Total in Modern Languages	— 30		— 6
IV. History and Political Science :				
	History and Government	15		3
	Political Economy	5		
	Total in Hist. and Political Sci.	— 20		— 3
V. Philosophy		11		3
	[Education and Teaching	1]		
VI. Fine Arts.				
VII. Music.				
VIII. Mathematics		4	1	2
IX. Engineering		1	1	
X. Physics		3	1	
XI. Chemistry		4		3
XII. Biology :				
	Botany	3		1
	Zoölogy	5	1	2
	Total in Biology	— 8	1	— 3
XIII. Geology :				
	Geology and Geography	3	1	
	Mineralogy and Petrography			
	Total in Geology	— 3	— 1	
XIV. American Archaeology and Ethnology				1
	In more than one Division	5		
Professional Students :				
	Divinity School	5		1
	Law School	1		
	Medical School	1		
	Total	107	5	26

The degree of Doctor of Philosophy was conferred upon the twenty-six persons named below. With each name are given the special field in which the degree was taken, the candidate's academic history, and his present occupation.

Philology.

CLARENCE POWERS BILL.

Classical Philology. — A.B. (*Adelbert Coll. of Western Reserve Univ., O.*) 1894, A.M. (*Western Reserve Univ., O.*) 1895, A.M. 1896. — Res. Gr. Stud., 1895-96.
Now Instructor in Latin, Adelbert College, Western Reserve University, O.

WILLIAM SARGENT BURRAGE

Classical Philology. — A.B. 1892, A.M. 1896. — Res. Gr. Stud., 1894-97.
Now residing in Cambridge.

HERBERT MÜLLER HOPKINS.

Classical Philology. — A.B. (*Columbia Univ., N.Y.*) 1893, A.M. 1896. — Res. Gr. Stud., 1895-96.
Now Instructor in Latin, University of California.

JOHN WESLEY RICE.

Biblical and Patristic Greek. — A.B. 1891, D.B. (*Yale Univ., Conn.*) 1894, A.M. 1896, D.B. 1897. — Res. Gr. Stud., Harvard Divinity School, 1895-96, 1897-98.
Instructor in Biblical Literature, Vanderbilt University, Tenn.

NEIL CONWELL BROOKS.

Germanic Philology. — A.B. (*Univ. of Kansas*) 1890, A.M. 1896. — Res. Gr. Stud., 1895-96.
Instructor in German, University of Illinois.

CHARLES HETWARD BARNWELL.

English Philology. — A.B. (*South Carolina Coll.*) 1887, A.M. (*ibid.*) 1888, A.M. 1893. — Res. Gr. Stud., 1892-94, 1897-98.
Instructor in English, Adelbert College, O.

GUSTAVUS HOWARD MAYNADIER.

English Philology. — A.B. 1889, A.M. 1890. — Res. Gr. Stud., 1889-90 and 1895-96.
Assistant in English at this University.

WILLIAM ALLAN NEILSON.

English Philology. — A.M. (*University of Edinburgh, Scotland*) 1891, A.M. 1896. — Res. Gr. Stud., 1895-96.
Associate in English, Bryn Mawr College, Pa.

GEORGE RAPALL NOTES.

English Philology. — A.B. 1894, A.M. 1896. — Res. Gr. Stud., 1894-96.
Now studying Slavic Languages, in St. Petersburg, as John Harvard Fellow.

ASHLEY HORACE THORNDIKE.

English Philology. — A.B. (*Wesleyan Univ., Conn.*) 1893, A.M. 1896. — Res. Gr. Stud., 1895-96.
Instructor in English, College for Women, Western Reserve University, O.

ISMAR JOHN PERITZ.

Semitic Philology. — Gr. (*Drew Theological Sem., N.Y.*) 1887, A.M. 1893. — Res. Gr. Stud., Harvard Divinity School, 1892-94. Res. Gr. Stud., 1894-96; Non-Res. Stud., 1895-96.
Professor of Semitic Languages and Archaeology, Syracuse University, N.Y.

Philosophy.

JAMES EDWIN LOUGH.

Psychology. — A.B. (*Miami Univ., O.*) 1891, A.M. (*ibid.*) 1894, A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1893-96.
Now Instructor in Philosophy, State Normal School, Oskosh, Wis.

WILLIAM PEPPERRELL MONTAGUE.

Metaphysics. — A.B. 1896, A.M. 1897. — Res. Gr. Stud., 1895-96.
Assistant in Philosophy at this University.

LEON MENDEZ SOLOMONS.

Psychology. — A.B. (*Univ. of California*) 1893, A.M. (*ibid.*) 1894. — Res. Gr. Stud., 1894-96, 1897-98; Non-Res. Stud., 1896-97.
Instructor in Psychology, University of Wisconsin.

History.

SAMUEL BANNISTER HARDING.

American History. — A.B. (*Indiana Univ.*) 1890, A.M. 1894. — Res. Gr. Stud., 1893-96.
Associate Professor of European History, Indiana University.

JAMES SULLIVAN.

Political Theories in the Middle Ages. — A.B. 1894, A.M. 1896. Res. Gr. Stud., 1894-95; Non-Res., 1896-97.
Now Assistant in Government at this University.

ARTHUR MAYER WOLFSON.

Italian History during the Middle Ages and Renaissance. — A.B. 1893, A.M. 1896. — Res. Gr. Stud., 1895-96.
Now Instructor in History, Boys' High School, New York, N.Y.

Mathematics.

HARRY YANDELL BENEDICT.

Celestial Mechanics. — S.B. (*Univ. of Texas*) 1893, A.M. (*ibid.*) 1893. — Res. Gr. Stud., 1893-96.
Student of Mathematics in Cambridge.

DONALD FRANK CAMPBELL.

Pure Mathematics. — A.B. (*Dalhousie Univ., N.S.*) 1890, A.B. 1894, A.M. 1896. — Res. Gr. Stud., 1894-96.
Now Instructor in Mathematics at this University.

Chemistry.

WILLIAM BURDELLE BENTLEY.

Organic Chemistry. — A.B. 1889, A.M. 1890. — Res. Gr. Stud., 1889-91.
Professor of Physics and Chemistry, Arkansas Industrial University.

ALLERTON SEWARD CUSHMAN.

Inorganic Chemistry. — S.B. (*Worcester Polytechnic Inst., Mass.*) 1883, A.M. 1897. — Res. Gr. Stud., 1895-96.
Commissary of Subsistence, with rank of Captain, U. S. Volunteers.

CHARLES AUGUSTUS SOCH.

Organic Chemistry.—A.B. 1894.—Res. Gr. Stud., 1895-97.

Instructor in Chemistry in the Manual Training School of Washington University, Mo.

Biology.**FRANK WATTS BANCROFT.**

Zoölogy and Physiology.—S.B. (*Univ. of California*) 1894, S.M. (*ibid.*) 1896, A.M. 1897.—Res. Gr. Stud., 1896-98.

Now studying Zoölogy, in Berlin, as Parker Fellow.

JOSEPH WILLIAM BLANKINSHIP.

Botany.—A.B. (*Drury College, Mo.*) 1890, A.B. 1894, A.M. 1895.—Res. Gr. Stud., 1894-96.

Now Professor of Botany, Montana State College.

FREDERICK CLAYTON WATTE.

Zoölogy.—LITT.B. (*Adelbert Coll. of Western Reserve Univ., O.*) 1892, A.M. (*Western Reserve Univ.*) 1894, A.M. 1895.—Res. Gr. Stud., 1895-96.

Instructor in Botany and Zoölogy in the Mixed High School, New York, N. Y.

American Archaeology and Ethnology.**FRANK RUSSELL.**

Somatology.—S.B. (*State Univ. of Iowa*) 1892, S.M. (*ibid.*) 1895, A.B. 1896, A.M. 1897.—Res. Gr. Stud., 1894-96.

Now Instructor in Anthropology at this University.

Of these twenty-six Doctors of Philosophy, twenty-one — four-fifths of the whole number—are now engaged in the active pursuit of a profession, and may be regarded as having completed their preparatory professional studies. All of the twenty-one are teachers either in colleges or universities (four are professors, eleven are instructors, and three are assistants), or in secondary institutions (three). Five of these teachers are in the service of this University, two as instructors and three as assistants. Three of the twenty-six Doctors of Philosophy are continuing their studies, two of them being holders of travelling fellowships. The permanent occupation of two only is as yet uncertain.

With respect to the academic history of these men it should be noted that all save two are holders of a Harvard degree (A.B. only, one; A.M. only, eleven; A.B. and A.M., twelve). All save one hold a degree in Arts (A.B. or A.M.). From other institutions there were five S.B.'s, three of whom were also Harvard A.M.'s; one Litt.B., who was also a Harvard A.M.; nine A.B.'s, three of whom were also Harvard A.B.'s and A.M.'s, and five of whom were Harvard A.M.'s only. No S.B.'s of Harvard University were among the candidates for the degree.

In the case of nine candidates five or more years had elapsed since the candidate had received the Harvard A.B. or had been admitted to equivalent standing. Three were A.B.'s (or its equivalent) of two years' standing. Six were A.B.'s of three years' standing, and eight were A.B.'s of four years' standing. The average time that had elapsed in the case of the candidates in 1898 between their A.B. and their Ph.D. is thus, omitting extreme cases of five years or more, very nearly three years.

This period — three years — is also approximately the average period of resident study at this University of these men. Fifteen

were Resident Students for three years; six for two years; one for one year (with a second year of Non-Resident study); and four were Resident Students for four years. These statistics, which are similar to those of other years, show clearly that though the technical requirement for the degree of Doctor of Philosophy is two years of graduate study, in actual practice candidates find it necessary to devote at least three years to such study, and that nearly all candidates prefer to spend these three years of study at this University.

Of the one hundred and two men who received the degree of Master of Arts in 1898, forty-two are continuing their studies at this University — thirty-six in the Graduate School, six in the professional schools; five are students in other universities; thirty-two are teaching—four as professors and six as instructors in colleges, twenty-two in secondary schools. The remaining twenty-three are nearly all engaged in business or in professional work. Since the permanent occupations of the Masters of Arts of 1898 are for the most part as yet undetermined, further statistics on this point are not significant. The subjoined Table, however, as an indication of the maturity of Graduate Students who receive the higher degrees, is not without interest:

TABLE VI. — AGE OF MASTERS OF ARTS, MASTERS OF SCIENCE, AND DOCTORS OF PHILOSOPHY: 1898.

	18	19	20	21	22	23	24	25	26	27	28 and over	Total.
A.M.'s . .	1	1	1	5	9	10	8	11	6	9	31	91
S.M.'s . .	..	..	..	..	..	..	..	1	..	1	3	5
Ph.D.'s . .	..	..	..	..	1	..	1	4	2	2	15	25

FELLOWSHIPS AND SCHOLARSHIPS.

The appointments of fellowships and scholarships for 1897-98 were made toward the close of the preceding academic year, chiefly in June 1897. Similarly the appointments for the current year 1898-99 were for the most part made in the academic year the business of which is covered by the present Report. The recommendations to fellowships and scholarships are made by the Faculty of Arts and Sciences on the nomination of its Committee on Fellowships and Other Aids for Graduate Students, and thus form a part

of the business of that Faculty. But as the persons concerned are members of the Graduate School information on this subject has always been given in the reports of the Dean of the Graduate School.

Twenty-eight fellowships and fifty-two scholarships* were held by students in the Graduate School in 1897-98. With the fellowships are included the John Harvard Fellowships without stipend. In 1897-98 there were five appointments to these fellowships. Fifteen of the fellowships, including four of the John Harvard Fellowships, were held by Non-Resident Students who pursued their studies abroad. Thirteen of the fellowships, including one John Harvard Fellowship, and all the scholarships were held by Resident Students.

For 1898-99 appointments have been made to twenty-four fellowships and to fifty-one scholarships.†

The names of the holders of fellowships during the two academic years 1897-98 and 1898-99, with statements as to the present occupation of each, follow. The fellowships are arranged in the order of foundation.

1897-98.

1898-99.

Harris Fellowship.**JEREMIAH DENIS MATTHIAS FORD.**

A.B. 1894, A.M. 1896, PH.D. (Romance Philology) 1897. — Res. Gr. Stud., 1894-97. — Instructor in French, 1896-97. — Student of Romance Philology, in Paris. Instructor in French at this University.

MURRAY ANTHONY POTTER.

A.B. 1895, A.M. 1897. — Res. Gr. Stud., 1894-96. — Townsend Scholar, 1897-98. Student of Romance Languages and Comparative Literature at this University.

1897-98.

1898-99.

Rogers Fellowships.**ARTHUR STODDARD COOLEY.**

A.B. (*Amherst Coll.*) 1891, A.M. 1893, PH.D. (Classical Philology) 1896. — Res. Gr. Stud., 1892-97; Non-Res., 1897-98. — Thayer Scholar, 1893-94; Shattuck Scholar, 1894-95; Morgan Fellow, 1896-98. — Instructor in Greek, 1896-97. Student of Classical Philology and Archaeology, at Athens.

ARTHUR STODDARD COOLEY.

Reappointed.

* Or — exclusive of the five John Harvard fellowships, a Rogers fellowship without stipend, and three of the Supplementary Foundations (the Hemenway fellowship, the scholarship of the Harvard Club of Chicago, and the Virginia Barret Gibbs scholarship) — twenty-one fellowships and fifty scholarships.

† Including three John Harvard fellowships; the (new) Ricardo fellowship, the nomination to which is vested in the Department of Political Economy; the scholarships of the Harvard Clubs of Chicago and San Francisco; and the Virginia Barret Gibbs scholarship.

MACY MILLMORE SKINNER.

A.B. 1894, A.M. 1895, PH.D. (Semitics) 1897.
— Res. Gr. Stud., 1894-97; Non-Res., 1897-98. — Townsend Scholar, 1894-95; University Scholar, 1895-96; Shattuck Scholar, 1896-97. — Assistant in Semitic Languages, 1894-97. — Student of Semitic Languages and History, in Strasbourg.
Student of Semitic Languages and History, in Berlin.

OLIVER MITCHELL WENTWORTH SPRAGUE.

A.B. 1894, A.M. 1895, PH.D. (Political Science) 1897. — Res. Gr. Stud., 1894-97. — University Scholar, 1894-95; Henry Lee Memorial Fellow, 1895-96; Thayer Scholar, 1896-97. — Student of Economic History, in London.
Now Assistant in Economics, at this University.

MACY MILLMORE SKINNER.

Reappointed.

Parker Fellowships.**CHARLES LEONARD BOUTON.**

A.M. (*Washington Univ., Mo.*) 1891, A.M. 1896.
— Res. Gr. Stud., 1894-96; Non-Res., 1896-98. — University Scholar, 1894-95; Morgan Fellow, 1895-96; Parker Fellow, 1896-98.
— Student of Mathematics, at Leipzig and Paris.
Instructor in Mathematics, at this University.

FRANK WATTS BANCROFT.

(See Morgan Fellowships, 1897-98.)

REGINALD ALDWORTH DALY.

A.B. (*Victoria Univ., Ont.*) 1891, A.B. (*ibid.*) 1892, A.M. 1893, PH.D. (Natural History) 1896.
— Res. Gr. Stud., 1892-95; Non-Res., 1896-98. — Parker Fellow, 1896-98. — Instructor in Geology, 1895-96.
Instructor in Physiography, at this University.

SIDNEY BRADSHAW FAY.

A.B. 1896, A.M. 1897. — Res. Gr. Stud., 1896-98. — Assistant in History, 1896-98.
Student of History, in Paris.

HENRY AUGUSTUS TORREY.

A.B. (*University of Vermont*) 1893, A.M. 1896, PH.D. (Chemistry) 1897. — Res. Gr. Stud., 1893-94, 1895-97. — Derby Scholar, 1893-96; Thayer Scholar, 1896-97. — Student of Chemistry in Leipzig.
Instructor in Chemistry, University of Vermont.

JOHN ANDREAS WIDTSON.

A.B. 1894. — Professor of Chemistry and Mineralogy, 1894-96, Utah Agricultural College; Chemist, 1894-98, to the U.S. Agricultural Experiment Station for Utah.
Student of Chemistry, at Göttingen.

JOHN ALBRECHT WALZ.

A.B. (*Northwestern University, Ill.*) 1892, A.M. 1893, PH.D. (Germanic Philology) 1897. — Res. Gr. Stud., 1894-97. — Scholar of the Harvard Club of Chicago, 1894-95. — Instructor in German, 1896-97.
Student of Germanic Philology and Literature, in Berlin.

JOHN ALBRECHT WALZ.

Reappointed.

John Thornton Kirkland Fellowship.**GEORGE DAVIS CHASE.**

A.B. 1889, A.M. 1895, PH.D. (Comparative Philology) 1897. — Res. Gr. Stud., 1894-97. — Shattuck Scholar, 1896-97. — Student of Comparative Philology in Leipzig.
Latin Master, Lawrenceville School, New Jersey.

CHARLES SUMNER GRIFFIN.

A.B. (*Univ. of Kansas*) 1894, A.B. 1896, A.M. 1896. — Res. Gr. Stud., 1895-98. — University Scholar, 1895-96. — Assistant in Political Economy, 1896-98.
Student of Economics in Europe.

James Walker Fellowship.**WILLIAM BRIGGS SAVERY.**

A.B. (*Brown University*) 1896, A.M. 1897. — Res. Gr. Stud., 1896-97. — Assistant in Philosophy, 1896-97. — Student of Philosophy, in Berlin.
Now continuing his studies at this University, as Morgan Fellow.

ARTHUR ONCKEN LOVEJOY.

A.B. (*University of California*) 1896, A.M. 1897. — Res. Gr. Stud., 1895-98. — Scholar of the Harvard Club of San Francisco, 1895-96; University Scholar, 1897-98.
Student of Philosophy at Paris.

1897-98.

1898-99.

Morgan Fellowships.

FRANK WATTS BANCROFT.

B.S. (*University of California*) 1894, A.M. (*ibid.*) 1896, A.M. 1897, PH.D. (Biology) — Res. Gr. Stud., 1896-98. — Virginia Barrett Gibbs Scholar, 1896-97. — Student of Zoology at this University.
Now continuing his studies in Berlin, as Parker Fellow.

CLARENCE POWERS BILL.

A.B. (*Adelbert College*) 1894, A.M. (*Western Reserve University*) 1895, A.M. 1896, PH.D. (Classical Philology) 1898. — Res. Gr. Stud., 1896-97. — University Scholar, 1896-98; Shattuck Scholar, 1896-97. — Student of Classical Philology at this University. Instructor in Latin at Western Reserve University.

WILLIAM ALLAN NEILSON.

A.M. (*University of Edinburgh*) 1891, A.M. 1896, PH.D. (English Philology) 1898. — Res. Gr. Stud., 1894-98. — University Scholar, 1896-97. — Student of English at this University.
Associate in English, Bryn Mawr College.

ARTHUR MAYER WOLFSON.

A.B. 1893, A.M. 1897, PH.D. (History) 1898. — Res. Gr. Student, 1895-98. — Student of History at this University.
Instructor in History in the Boys' High School, New York.

AMADEUS WILLIAM GRABAU.

B.S. (*Massachusetts Institute of Technology*) 1896, A.M. 1898. — Res. Gr. Stud., 1897-98. — Thayer Scholar, 1897-98.
Student of Palaeontology at this University.

EARLE RAYMOND HEDRICK.

A.B. (*Univ. of Michigan*) 1896, A.M. 1898. — Res. Gr. Stud., 1897-98. — Shattuck Scholar, 1897-98.
Student of Mathematics at this University.

EDWARD CHARLES JEFFREY.

A.B. (*University of Toronto*) 1893. — Lecturer in Biology, University of Toronto, on leave of absence.
Student of Botany at this University.

WILLIAM BRIGGS SAVERY.

(See James Walker Fellowship, 1897-98.)

John Tyndall Scholarship.

HARRISON HITCHCOCK BROWN.

A.B. (*Amherst College*) 1892, A.M. 1894. — Res. Gr. Stud., 1894-97. — Townsend Scholar, 1896-97. — Student of Physics at this University.
Now continuing his studies at this University, as John Tyndall Scholar.

HARRISON HITCHCOCK BROWN.

Reappointed.

Robert Treat Paine Fellowship.

JOHN EDWARD GEORGE.

PH.B. (*Northwestern University*) 1895, A.M., 1897. — Res. Gr. Stud., 1896-97. — Scholar of the Harvard Club of Chicago, 1896-97. — Student of the Ethical Problems of Society, at this University.
Now continuing his studies in Germany.

JOHN EDWARD GEORGE.

Reappointed.

Henry Lee Memorial Fellowship.

HERBERT CAMP MARSHALL.

A.B. (*Ohio Wesleyan University*) 1891, A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-98. — Assistant in Economics, 1895-98. — Townsend Scholar, 1896-97. — Student of Political Economy at this University.
First-year Law Student.

WILLIAM LYON MACKENZIE KING.

A.B. (*University of Toronto*) 1894, LL.B. (*ibid.*) 1896, A.M. (*ibid.*) 1897, A.M. 1898. — Res. Gr. Stud., 1897-98. — Townsend Scholar, 1897-98.
Student of Political Economy at this University.

Ozias Goodwin Memorial Fellowship.

ARTHUR LYONS CROSS.

A.B. 1895, A.M. 1896. — Res. Gr. Stud., 1895-97. — Assistant in History, 1896-97. — Student of Constitutional Law in Berlin.
Student of History at this University.

No appointment.

Henry Bromfield Rogers Memorial Fellowship.

MORTON ARNOLD ALDRICH.

A.B. 1895, PH.D. (*Univ. of Halle*) 1897. — Student at the Universities of Berlin, Munich, and Halle. 1895-97. — Student of Ethics in its relations to Sociology at this University.
Instructor in Political Economy at this University.

1897-98.

GEORGE HENRY BOKE.

PH.B. (*University of California*) 1894. — Principal, 1895-98, of the Oakland High School, California.
Student of Ethics in its relations to Jurisprudence at this University.

1898-99.

Hemenway Fellowship.

FRANK RUSSELL.

A.B. (*Iowa State Univ.*) 1892, A.M. (*ibid.*) 1896, A.B. 1896, A.M. 1897, PH.D. 1898. — Res. Gr. Stud., 1896-98. — Robert C. Winthrop Scholar, 1893-96; Hemenway Fellow, 1896-97. — Instructor in Anthropology, 1897-98. — Student of American Archaeology and Ethnology at this University.
Instructor in Anthropology at this University.

No appointment.

John Harvard Fellowships.

ABRAM PIATT ANDREW, JR.

A.B. (*Princeton Univ., N. J.*) 1896, A.M. 1896. — Res. Gr. Stud., 1896-97. — Henry Bromfield Rogers Memorial Fellow, 1894-96; Assistant in Economics, 1896-97. — Student of Economics in London.
Student of Economics in Europe.

GEORGE HENRY CHASE.

A.B. 1896, A.M. 1897. — Non-Res. Gr. Stud., 1896-98. — George Griswold Van Rensselaer Fellow, 1896-97; Fellow of the American School of Classical Studies at Athens, 1897-98. — Student of Classical Archaeology in Athens.
Now continuing his studies at this University, as Shattuck Scholar.

ALLERTON SEWARD CUSHMAN.

A.B. (*Worcester Polytechnic Institute*) 1896, A.M. 1897. — Res. Gr. Stud., 1896-98. — Instructor in Chemistry, 1892-96, Washington University, Mo. — Townsend Scholar, 1896-97. — Student of Chemistry at this University.
Commissary of Subsistence, with rank of Captain, U. S. Volunteers.

WALTON BROOKS McDANIEL.

A.B. 1893, A.M. 1894. — Res. Gr. Stud., 1893-96. — Assistant in Classics, 1896-97. — Student of Classical Philology in Europe.
Now continuing his studies in Cambridge.

JAMES KELSEY WHITEMORE.

A.B. 1895, A.M. 1896. — Res. Gr. Stud., 1895-97; Non-Res., 1897-98. — Instructor in Mathematics, 1896-97. — Student of Mathematics, in Paris.
Now continuing his studies in Göttingen, as John Harvard Fellow.

GEORGE RAPALL NOYES.

A.B. 1894, A.M. 1895. — Res. Gr. Stud., 1894-96. — Teacher of Classics, 1894-96, The Browne and Nichols School, Cambridge. — Savage Scholar, 1896-97; Thayer Scholar, 1897-98. — Student of Slavic Languages in St. Petersburg.

JOSEPH TRUMBULL STICKNEY.

A.B. 1895. — Student of Classical Philology and Sanskrit in Paris, 1896-98.
Now continuing his studies, in Paris.

JAMES KELSEY WHITEMORE.

Reappointed.

Whiting Fellowships.

JOHN EMERSON BURBANK.

A.B. (*Bowdoin College*) 1896, A.M. (*ibid.*) 1897. — Res. Gr. Stud., 1897-98. — Assistant in Physics, 1896-97, Bowdoin College. — Student of Physics at this University.
Now continuing his studies at this University, as Whiting Fellow.

JOHN EMERSON BURBANK.

Reappointed.

SILAS ELLSWORTH COLEMAN.

S.B. (*University of California*) 1895, A.B. 1897, A.M. 1898. — Res. Gr. Stud., 1896-98. — Scholar of the Harvard Club of San Francisco, 1896-97. — Student of Physics at this University.
Teacher of Science, Los Angeles High School, Cal.

HAROLD EDWARDS.

A.B. 1896. — Res. Gr. Stud., 1896-98. — Thayer Scholar, 1896-97. — Student of Physics at this University.
Now continuing his studies at this University, as Whiting Fellow.

GEORGE WASHINGTON PIERCE.

S.B. (*University of Texas*) 1893, A.M. (1894.) 1894. — Res. Gr. Stud., 1893.
Student of Physics at this University.

HAROLD EDWARDS.

Reappointed.

Ricardo Fellowship (founded 1898).**FRANK HENDRIX.**

A.B. 1897. — Student, Harvard Law School, 1897-98.
Second-year Law Student and Student of Economics at this University.

The following Table gives the usual statistics relative to the applications and appointments for the three successive years, 1896-97, 1897-98, and 1898-99 : —

TABLE VII. — FELLOWSHIPS AND SCHOLARSHIPS (1896-98).**1. Applications and Appointments.**

	1896-97.	1897-98.	1898-99.
Spring applicants for reappointment or promotion	48	50	47
Spring applicants for a first appointment	250	225	223
Later applicants	83 881	29 304	38 307
Appointed to fellowships	19	21	21
Appointed to scholarships	48	50	47
Appointed instructors or assistants	17 84	20 91	14 83
Deduct for repetitions	1	2	3
	88	89	90
Entered or continued in the Graduate School without receiving any of the above-named appointments	51	55	50
Entered undergraduate classes of Harvard College	6	■	■
Entered other departments of the University	8 65	10 73	5 85
Applicants who were at the University in the year following their applications	148	163	163
Applicants not at the University in that year	103	142	143
	881	304	307

2. *Classification of Applicants and Appointees.*

	1896-97.		1897-98.		1898-99.	
	Applicants.	Appointees.	Applicants.	Appointees.	Applicants.	Appointees.
Students of Philology	122	24	101	23	107	24
Students of Philosophy, History, or Political Science	109	20	103	19	106	19
Students of Mathematics, Physics, or Chemistry	59	14	60	19	55	17
Students of Natural History	89	9	38	10	35	7
Students of other branches, or unclassified	2	0	2	0	4	1
	381	67	304	71	307	68
Students in the Graduate School	119	46	104	48	115	48
Students in Harvard College	39	8	29	6	25	6
Students in other Departments of the University	3	0	6	1	6	1
Former students in some Department of the University	31	5	27	2	28	5
Persons never previously members of the University	149	8	138	19	133	18
	381	67	304	71	307	68
Harvard Bachelors of Arts or Science, not previously graduated elsewhere	38	19	38	15	35	16
Harvard Bachelors of Arts or Science, previously graduated elsewhere	29	10	23	5	21	5
Graduates of other institutions, not Harvard Bachelors of Arts or Science	201	36	187	47	207	42
Undergraduates of Harvard College, not already graduated elsewhere	21	2	31	4	19	5
Undergraduates of other institutions and other non-graduates	42	0	35	0	25	0
	381	67	304	71	307	68

Twelve of the twenty-eight holders of fellowships in 1897-98 are now engaged in teaching, — all of them, with one exception, being already Doctors of Philosophy, — nine in colleges or universities (including six at this University), and three in schools. Of the remainder, eight are continuing their studies at this University, and seven abroad, while one is in the United States army. Twelve of the fellowship holders in 1897-98 have similar appointments for the current year, 1898-99.

INSTRUCTORSHIPS AND ASSISTANTSHIPS.

Fellowships and scholarships are not the only aids that Graduate Students receive. Many members of the Graduate School serve the University as paid instructors and assistants, by regular appointment of the Corporation. In 1897-98, ten members of the School held instructorships, and thirty-three held assistantships. In the current year, the numbers are, respectively: five instructors, and thirty-seven assistants. Table VI shows that many of the annual appointments to these positions are made from among applicants for fellowships and scholarships in the Graduate School.

Of the two hundred and ninety-three members of the School in 1897-98, one hundred and eighteen—or about forty per cent.—were holders either of instructorships, assistantships, fellowships with stipends, or scholarships. In this count no note is taken of proctorships and other similar appointments by which the income of students in the School is increased.

THE CATALOGUE OF THE GRADUATE SCHOOL (1873-98).

In my last Report, in analyzing the membership of the School, I pointed out that there were in general four classes of men who, each for a special purpose, secured enrolment in the School:—first, young men mostly recent Bachelors of Arts who are continuing the liberal studies of their undergraduate days in a more specialized form, without distinct reference to the professional career; secondly, men of a similar or a higher grade of academic advancement who intend to become teachers in colleges and higher secondary schools and who fit themselves for their life-work by specializing and by doing original research in some branch of learning or science; thirdly, men of similar academic standing who intend to become specialists in literature, history, philosophy, or science, without also expecting to become teachers; and fourthly, men at present actually engaged in professional pursuits who seek by study in the Graduate School to qualify themselves the better for their special professional tasks. In 1896-97 two-thirds of the membership of the School might be placed in the second group (of intending teachers), while the remainder were found to be nearly equally divided among the other groups. A similar classification will hold true of the members of the School in 1897-98.

These comments on the aim and purposes of the present members

of the School naturally suggest an inquiry as to the actual occupations and pursuits of the men who holding the higher degrees have gone forth from the School. This inquiry we are now in a position to answer more accurately and completely than at any time in the past.

A Catalogue of the Graduate School (1873-98), the first of its kind, has been prepared under my supervision and has been recently published. The present year is an appropriate one in which to issue such a Catalogue, for the Graduate School or Department has now been in existence a quarter of a century, exactly twenty-five years having elapsed since the first Doctor of Philosophy was created. The Catalogue contains not only the names of all holders of the degrees of Ph.D., S.D., S.M., and A.M.* (on examination), but also the post-office addresses of these persons (in the case of those who are dead the date of their death), and statements about their occupations, the degrees they have received and the positions they have held. There are one thousand and eleven different persons in this list. In an appendix the Doctors of Philosophy and of Science are grouped according to the departments of learning or science in which each has received his degree.

It will be of interest to give the statistics of the degrees conferred, and to follow these by some remarks on the present occupations of the holders of the degrees.

The following Table indicates the number of degrees conferred each year.

* There are, or have been, six classes of Master of Arts of Harvard University:—holders of the degrees (1) *honoris causa*; (2) *ad eundem*; (3) in course, *i. e.* Bachelors of three or more years' standing, on the payment of a fee; (4) with a professional degree, without additional study or residence; (5) with the degree of Doctor of Philosophy, and (6) *pro meritis*, or on examination, conferred after residence and examination upon candidates approved by the Faculty of Arts and Sciences or—before 1890—the Academic Council. The A.M. *ad eundem* ceased to be conferred early in the present century; the A.M. in course has not been given since 1872; the A.M. with a professional degree but without additional study, was conferred only in 1883-95, both years inclusive, and the Ph.D. carried with it the degree of A.M. only from 1877 to 1892. At the present time the degrees of Masters of Arts of Harvard University are A.M. *honoris causa* and A.M. *pro meritis*. The Catalogue, so far as this degree is concerned, contains the names of the latter kind of Masters of Arts.

TABLE VIII. — RECIPIENTS OF HIGHER NON-PROFESSIONAL DEGREES FROM HARVARD UNIVERSITY (ON EXAMINATION): 1873-1898.

	DOCTORS OF PHILOSOPHY.			DOCTORS OF SCIENCE.			MASTERS OF ARTS.			MASTERS OF SCIENCE.*		
	Whole No.	Deceased.	Living.	Whole No.	Deceased.	Living.	Whole No.	Deceased.	Living.	Whole No.	Deceased.	Living.
1870 . . .	..	..	..	..	..	..	1†	..	1			
1873 . . .	2	1	1	1	..	1	..	..	..
1874 . . .	..	..	..	..	..	..	8	1	7			
1875 . . .	3	..	3	1	..	1	13	2	11			
1876 . . .	5	2	3	..	..	..	7	2	5			
1877 . . .	4	1	3	..	..	..	9	1	8			
1878 . . .	4	..	4	3	..	3	13	2	11			
1879 . . .	2	..	2	1	..	1	9	..	9			
1880 . . .	5	1	4	..	..	..	14	..	14			
1881 . . .	2	1	1	1	..	1	7	..	7			
1882 . . .	..	..	..	1	..	1	7	..	7			
1883 . . .	5	1	4	..	..	..	12	2	10			
1884 . . .	5	1	4	1	..	1	15	3	12			
1885 . . .	4	..	4	..	..	..	12	1	11			
1886 . . .	4	..	4	2	..	2	17	2	15			
1887 . . .	1	..	1	1	..	1	13	1	12			
1888 . . .	7	..	7	..	..	..	32	..	32			
1889 . . .	4	..	4	2	..	2	23	..	23			
1890 . . .	8	..	8	..	..	..	31	3	28			
1891 . . .	7	..	7	1	..	1	45	2	43			
1892 . . .	5	..	5	1	1	..	70	2	68			
1893 . . .	12	..	12	1	..	1	70	1	69			
1894 . . .	16	1	15	2	..	2	98	2	96			
1895 . . .	16	..	16	2	..	2	84	4	80			
1896 . . .	18	..	18	..	..	..	90	1	89			
1897 . . .	25	2	23	1	..	1	111	1	110	..	..	..
1898 . . .	33	..	33	..	..	..	102	..	102	5	..	5
Totals .	190	11	179	22	1	21	645	33	612	5	..	5
Total (deducting 136 for names inserted twice), 1011.												

* Degree established 1897.

† This degree was voted in 1894.

The following Table indicates the departments of learning and science in which the degrees of Doctor of Philosophy and Doctor of Science have been conferred:—

TABLE IX.—DOCTORS OF PHILOSOPHY AND SCIENCE: CLASSIFIED ACCORDING TO THE SUBJECTS IN WHICH THE DEGREES HAVE BEEN CONFERRED: 1873-98.

	Ph.D.'s.	S.D.'s.	TOTAL
Philology	69		
Classical	32		
Germanic, etc.	7		
English	17		
Romance	5		
Comparative	1		
Sanskrit	1		
Semitic	6		
Philosophy	18	..	18
History	22	..	22
Political Science	10	..	10
Mathematics	8	2	10
Physics	9	3	12
Chemistry	14	5	19
Natural History	38	12	50
American Archaeology and Ethnology	2	..	2
Total	190	22	212

The Doctors of Philosophy and Doctors of Science for the most part are or have been teachers (171 out of 212) and chiefly in colleges. Of this number 25 are or have been teachers of Classics, 25 of Modern Languages, 23 of History and Political Science, 14 of Philosophy. Sixty-two are or were teaching Natural or Physical Science, — 27 Biology, 23 Physics and Chemistry, including 18 teachers of Chemistry; eight are teaching Mathematics. Sixteen are classified as Scientists, a category that includes men of science who are not also teachers. Six of the Doctors of Philosophy are clergymen, but five of the six are or have been also professors in colleges or theological seminaries. Six are lawyers or are in public life. Only seven of the living Doctors are not actually engaged in some profession or other similar occupation. These seven are continuing their studies, as a rule in Europe.

A classification of the 704 A.M.'s who are not also Ph.D.'s is not wholly satisfactory, since many of these men have not yet completed their studies and are not established in life. It is worth noting, however, that 72 of them are lawyers, 13 physicians, 61 clergymen; 28 are in "business," 12 are journalists or "authors," 7 are libra-

rians, and 19 are "scientists." Three hundred and sixteen are teachers — 38 in Classics, 57 in Modern Languages (including 33 in English), 26 in History and Political Science, 10 in Philosophy, 25 in Mathematics (including Astronomy), and 48 in Natural and Physical Science.

The Catalogue shows, not counting private tutors, assistants in college work and a few doubtful cases, 331 teachers in colleges (211 professors and 120 instructors), and 103 teachers in secondary schools. The Catalogue takes no note of the large number of members of the School who received no degree for their studies, but are among the most important elements in the membership of the School.

These figures clearly show that while the Graduate School has been to those who resort to it primarily a place in which to secure preparation for the work of teaching in colleges and universities and in the higher secondary institutions, it has also to a very large extent been used by men who subsequently have entered other professions and other walks of life.

DEGREES IN THE GRADUATE SCHOOL.

The degrees administered through the Graduate School are those of Bachelor of Arts, Master of Arts, Master of Science, Doctor of Philosophy and Doctor of Science.

A.B. — Applications made for this degree by Graduate Students are by the Board referred to the Committee on Admission from Other Colleges and to the Administrative Board of Harvard College.

A.M. — The Administrative Board receives and reviews all applications for the degree of Master of Arts, and candidates approved by the Board are favorably recommended to the Faculty.

S.M. — Applications for this degree are normally referred to the several Divisions for their recommendations and are then transmitted to the Faculty through the Administrative Board.

Ph.D. and S.D. — In the case of candidates for these degrees the Board ascertains merely whether the technical conditions of residence have been satisfactorily fulfilled, the responsibility concerning further conditions being by statute devolved upon the various Division committees on Honors and Higher Degrees.

In my last Report were pointed out certain anomalies in the present administration of the degrees of Bachelor of Arts and Master of Arts that need correction, and certain remedies were there recommended. Supported by the votes of the Administrative Board I beg leave to call attention anew to the recommendations and to the arguments on

which they were based, as set forth on pp. 149-151 of the Report. The votes of the Board on these matters are as follows:—

On December 12, 1897, on motion of Professor Norton, it was

Voted, That in the opinion of this Board all candidates for the degree of Master of Arts should be required to register in a graduate department of the University, either the Graduate School or one of the professional schools, and all studies pursued by students as undergraduates should be credited to the degree which is awarded on the completion of the undergraduate period of study, — the degree of Bachelor of Arts.

On May 2, 1898, on motion of Professor Farlow, it was

Voted, That in the opinion of this Board, after the present year, the degree of Bachelor of Arts should not be given to students registered in the Graduate School for work done while so registered.

The second of these votes has been presented to the Faculty, but has as yet failed to receive its approval. The first vote has not yet been considered by the Faculty.

The opening of the current year (1898-99) was marked as in 1897 by a meeting of the members of the School, the officers of instruction and invited guests, in the Faculty Room, on Thursday evening, October 6. Members of the Corporation, of the Board of Overseers, and of the Overseers' Visiting Committees were invited to be present. About three hundred gentlemen assembled and listened to the principal address by Professor Farlow, and to shorter addresses by Professor Dicey of Oxford, President Eliot, and Mr. G. W. Benedict.

JOHN HENRY WRIGHT, *Dean*.

NOVEMBER 26, 1898.

THE DIVINITY SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—As Dean of the Divinity School, I have the honor to present the following report for the academic year 1897-98:—

Forty students were connected with the School. These were distributed as follows:—

Resident Graduates	17	Junior Class	11
Senior Class	4	Special Students	6
Middle Class	2		

One member of the Senior Class was a graduate of Princeton Theological Seminary, so that the number of graduate students was eighteen.

Twelve Theological Seminaries were represented as follows:—

Andover	2	Manchester College, Oxford .	1
Bethel Baptist, Sweden . . .	1	Meadville	3
Boston University	3	Presbyterian College, Montreal	1
Cambridge Episcopal	2	Princeton	1
Hamilton	1	Wittenberg	1
Harvard	2	Yale	1

Twenty-six colleges were represented, namely:—

Antioch	1	University of Missouri	1
Brown University	1	Mount Allison	1
University of California . . .	1	Mount Union	1
University of Chicago	1	University of North Carolina .	1
Colorado	1	Oberlin	2
Dickinson	1	Ohio Wesleyan University . .	1
Elon	1	Princeton University	1
Harvard University	9	Randolph Macon	1
Hobart	1	Trinity	1
Lebanon University	1	Tufts	2
London University	1	Yale University	2
McGill University	1	Williams	2
University of Michigan	1	Wittenberg	1

The last year was an interesting one from the fact that in it the new regulation as to fees for instruction went into effect. It was pleasant to find that instead of a falling off in numbers there was a slight increase, two more being present than in the preceding year.

It was still more gratifying to find that the proportion of students receiving pecuniary assistance, and the average amount received by each student thus helped, were both less than usual. Too much encouragement must not, however, be drawn from these facts, as this year the number of students has fallen to twenty-seven and the proportion of students helped has increased. Whatever may be the cause of the falling off in numbers during the current year the facts stated in regard to the last year show that the higher fee does not necessarily imply diminished attendance.

Thirty-one students left the School either during, or at the end of, the year. This is a large proportion of the whole number present, but not much, if at all, larger than the average. In 1897, twenty-six; in 1896, twenty-eight; and in 1895, thirty-six thus left. Nine of those who left the School last year received degrees; three that of B.D., one that of Ph.D., and five that of A.M. Sixteen left in the natural course of things. As regular students they had been three or four years in the School, or as Resident Graduates they had completed the year for which they came, or had added a year to that. Of those who left before their regular time, four did so on account of ill health, three to take the charge of parishes, and one for the purpose of going as a missionary to China. One other, a member of the Senior Class, had accepted the charge of a parish but remained in the School doing half-work. Of the three who took the degree of B.D. only one had been a member of the class from the beginning. Of the remaining two, one had been in the School four years, the other had, the year before, graduated at Princeton. Of the eight with which the class began only three finished their three years in the School, and only one received its degree.

I am happy to state that the general catalogue of the School is at last published. It may be remembered that it was begun in 1889 by a Committee of the Association of the Alumni. It has been completed by Mr. Morison the Secretary and Librarian of the School. No one who has not watched the course of this or some similar undertaking can realize the amount of labor and ingenuity that is required for its completion. Accuracy is of course fundamental. To this must be added skill in finding and following out clues; and for the best success, the inspiration of a pleasant excitement in the search, such as the hunter feels in the pursuit of his game. All these qualifications Mr. Morison brought to the work and the result is one with which both he and the School may well be satisfied.

From this catalogue it appears that 1,047 students have been con-

nected with the School since its beginning. Of these, 550 graduated from the School, and 497 did not. Of the graduates 248 are still living, and of the non-graduates 368. The number of living non-graduates is thus one third larger than that of living graduates. According to present indications this proportion will rapidly increase. The statistics that I have just given show in part the reasons of this. These reasons are the large proportion of Graduate Students, the opportunity that students have to take other degrees, and the impatience of students to enter upon the work of their lives. It is to be regretted that the churches encourage this impatience. They appear to prefer a minister who has seen the inside of a Divinity School; but the amount of time that he has passed in one seems a matter of indifference. It is to be hoped that the churches instead of looking out, each for its own immediate advantage, may at some time see the gain that would result from encouraging men to take a full course of preparation. In the case of the class of 1898 both Orthodox and Unitarian churches plucked our fruit before it was ripe. Students yield more readily to the eagerness to be at work, from the fact that to some of them certain studies that have formerly been considered essential in the preparation for the ministry seem to be of small value. It has been sometimes urged that the School should admit for the degree more studies of a general nature such as these men would recognize as of practical importance. This has been done to some extent. So far, however, as a Divinity School makes its teaching resemble that of a College, so far does it lose its reason for existence; and so far would any special reason for attending it cease to exist. A theological seminary is established for the sake of certain studies that may be pursued there as nowhere else. If the men who wish to devote only a short time to these special studies desire to pursue longer those of a more general nature, they could stay at a college where these would naturally be followed, or, under the present equality of fees in this University, they could take them while retaining their membership in the School. The facts thus stated may be regarded as springing from the tendency to secularization which is manifesting itself to some extent in the ministerial profession. Strictly professional studies and degrees are, in the minds of some, losing a little of their importance. This secularization has obviously its good side; but the further consideration of it would be out of place in this report. The lack of a body of men remaining three years in the School and then receiving its degree, is certainly a matter of great regret. To offset this loss we have the larger University work which the School is doing.

I have referred in former reports to the Williams Fellowships. These are offered to graduates of Theological Seminaries who are proposing to enter the University. The number of these offered each year has varied from two to three, and the amount of a fellowship has varied in different years, the highest sum having been \$500, and the lowest \$350. The present amount is \$400. These fellowships have been useful in calling attention to the School, and in aiding men of promise to attain a more thorough training than would otherwise have been possible. Statistics that I have obtained from the Secretary of the School show that the money thus used has been profitably spent. There were in the ten years ending with 1896-97 eighteen Williams Fellows. Of these, two became professors, one in the Semitic department of a Theological Seminary, and one in that of Philosophy in a State University. The remaining sixteen became settled ministers. These ministers belong to seven different denominations as follows: Orthodox Congregational six, Presbyterians five, Disciples, Dutch Reform, Episcopal, Methodist, and Unitarian, one each. Of the eighteen, one, the lamented Professor Freeman of Meadville, has died. Of the seventeen now living, one is a University Professor and fifteen are pastors of churches. They reside in twelve different states, as follows: Massachusetts three, Illinois two, New York two, Ohio two, Colorado, Indiana, Iowa, Louisiana, Minnesota, New Hampshire, North Carolina, and South Carolina one each.

Two important steps were taken last year in the management of the School. One was the abolition of the restrictions in regard to preaching by students. Preaching now stands upon the same footing as any other business in which a student may wish to engage. He must perform all required work in the courses which he undertakes, and if he receives help, must give his main time and strength to the work of the School. The other step was the allowing the study of elocution to count as half a course. It is hoped that this will cause on the part of students a more systematic attention to this department of instruction, the importance of which I urged in my last report.

During the summer Mr. Ropes was promoted to be Assistant Professor. The promotion was richly deserved.

The opening address of the year was given by Professor Toy. His subject was "Methods of Studying Old Testament Ethics."

I present in tabular form a list of the courses offered and a classified statement of the attendance on the different courses.

COURSES OF INSTRUCTION, 1897-98.

OLD TESTAMENT.

- Professor LYON. — Hebrew. — Mitchell's Hebrew Lessons. Explanation of parts of Genesis and of the Psalm-book. Three hours. 8 Div., 2 Col.
- Professor TOY. — Hebrew (second course). — Interpretation of parts of the Prophets and Poetical Works. Text-criticism. Two hours. 2 Div.
- Professor LYON. — Jewish Aramaic. Kautzsch's *Biblisch-Aramäische Grammatik*. — Interpretation of parts of Ezra, Daniel, and the Targums. Two hours.
- Professor LYON. — History of Israel, political and social, till the death of Herod the Great. Text-books, lectures, and theses. Two to three hours.
3 Div., 58 Col., 1 Sci.
- Professor TOY. — History of pre-Christian Hebrew Literature. Two hours.
2 Div., 1 Col., 1 Sp.
- Professor TOY. — History of the Hebrew Religion, with comparison of other Semitic religions. Two hours. 4 Div.
- Professor LYON. — Assyrian. Lyon's *Assyrian Manual*. Delitzsch's *Assyrian Grammar*. Abel and Winckler's *Keilschrifttexte*. Two hours.
- Professor LYON. — Assyrian (second course). — Delitzsch's *Assyrian Grammar*. The Chaldean Epic. Letters and Commercial Documents. Two hours.
1 Div., 1 Gr.
- Research courses. The instructors arrange and supervise for any properly prepared student a line of special study on such topic as may be agreed on.
1 Gr.

The Semitic Conference holds meetings twice a month throughout the academic year. The subject for 1897-98 was the names of Semitic deities. There were essays and discussions. In addition to the regular work letters from foreign correspondents were read from time to time, and notes were presented calling attention to new publications, to travels, explorations, and discoveries, and to additions to the Semitic Museum and the Semitic Library.

3 Div., 5 Gr., 10 Col.

NEW TESTAMENT.

- Professor THAYER. — New Testament Times. — The political, social, moral, and religious condition of the world when Christ appeared. Two and a half hours. 5 Div.
- Professor THAYER. — New Testament Introduction. — The origin, contents, and history of the New Testament writings, together with the formation of the Canon. Two and a half hours. 6 Div.
- Mr. BORN. — Preparatory Course. — General topics (including the characteristics of New Testament Greek and the elements of textual criticism); exegetical work begun. Two and a half hours. 4 Div.

Mr. ROPES. — The Teaching of Jesus as contained in the Parables. Two hours.

Mr. ROPES. — The Synoptic Gospels, with special reference to the Synoptic Problem. Two and a half hours. 8 Div.

Professor THAYER. — The Gospel and Epistles of John. Two hours.

Mr. ROPES. — The Apostolic Age. — Study of the Acts of the Apostles. Two hours. 8 Div., 1 Col.

Professor THAYER. — Outline lectures of the life of Paul. — Study of the Four Great Epistles. Two hours. 6 Div.

Mr. ROPES. — The Minor Pauline Epistles. Two hours.

Mr. ROPES. — The Pastoral Epistles. One hour.

Professor THAYER. — The Epistle to the Hebrews. Two hours.

Mr. ROPES. — The Catholic Epistles. One hour.

Mr. ROPES. — The Apocalyptic literature, with special study of the Revelation of John. Two hours. 1 Div.

Professor THAYER. — Biblical Interpretation. — Its history, methods, principles, and their application in the study of difficult and debated New Testament passages. Two hours.

Professor THAYER. — Biblical Theology of the New Testament, centring upon the doctrines of sin and redemption. Two hours.

Professor THAYER. — History of the English Bible, with detailed study of the Revised New Testament. One hour.

Professor THAYER. — Modern Lives of Christ. One hour half the year.

Professor THAYER. — Biblical Geography and Archaeology. One hour.

Professor THAYER. — Selections from the Septuagint, with special reference to the use made of the Old Testament in the New. One hour.

Professor THAYER. — Selections from Greek and Latin writers of special interest to students of the New Testament. One hour. For example: —

a. Plutarch on the Delay of the Deity in the punishment of the wicked.

b. Philo's Legatio ad Caium and In Flaccum.

c. Josephus against Apion.

d. Selections from the Apocrypha of the Old Testament and of the New.

e. Selections relating to the early history of the Canon.

f. The Octavius of Minucius Felix, the Apologeticus of Tertullian, the correspondence of Pliny and Trajan.

Professor LYON. — Classical Aramaic (Syriac). Roediger's Chrestomathia Syriaca, ed 8. The Peshitto version of the New Testament.

Professor THAYER. — Advanced study and research on such topics as the antecedents and aims of individual students may render advisable. 1 Div.

The New Testament Conference meets on the second and fourth Monday evenings of every month to hear and discuss papers upon topics relating to the New Testament.

CHURCH HISTORY.

- Professor PLATNER.** — History of the Early Church, with special reference to the patristic literature. Two hours. 5 Div., 2 Col.
- Professor EMERTON.** — The Mediaeval Church. — Formations of national churches in the Germanic states; establishment of the mediaeval papacy and its development to be the controlling force in European affairs; the Holy Roman Empire. Two hours. 8 Gr., 8 Col.
- Professor EMERTON.** — The Era of the Reformation in Europe from the rise of Italian Humanism to the close of the Council of Trent, 1350-1563. Two hours. 1 Div., 6 Gr., 12 Col.
- Professor PLATNER.** — History of the Church since the Reformation. Two hours. 3 Div., 2 Gr., 2 Col.
- Professor EMERTON.** — [History of Christian Doctrines.] Two hours.
- Professor EMERTON.** — Selected topics from the Canon Law, with reference also to the principles of Protestant Church Law. One hour.
- Professor PLATNER.** — Documents relating to Ancient Church History (A). One hour.
- Professor PLATNER.** — Documents relating to Ancient Church History (B). One hour.
- Professor EMERTON.** — Advanced study and research in connection with the Seminary in Mediaeval History. Special topic: The "Erasmian Reform." Two hours.

SOCIAL QUESTIONS.

- Professor PEABODY.** — The Ethics of the Social Questions. — The modern social questions: Charity, the Family, Temperance, and various phases of the Labor question in the light of ethical theory. — Lectures, special researches, and required reading. Three hours. 5 Div., 5 Gr., 95 Col., 1 Law.
- Professor PEABODY.** — Sociological Seminary. — Subject for the year: The Christian Doctrine of the social order. Two hours. 5 Div., 4 Gr.
- Professor PEABODY.** — Special work. 1 Div.

COMPARATIVE STUDY OF RELIGIONS.

- Professor EVERETT.** — Comparative Study of Religions, particularly the Vedic Religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese Religions. Two hours. 9 Div., 3 Gr., 12 Col.

THEOLOGY.

- Professor EVERETT.** — The Psychological Elements of Religious Faith. One hour. 10 Div., 5 Gr., 12 Col., 1 Sc.
- Professor EVERETT.** — Systematic Theology. Theism and the special content of Christian faith. An elaborate essay on some theological subject is expected from each student taking this course. Three hours. 9 Div., 1 Gr., 2 Col.
- Professor EVERETT.** — Advanced Study. 1 Div.

HOMILETICS AND PASTORAL CARE.

Mr. HALE. — The structure and analysis of sermons. 4 Div.

Professor PRABODY. — Each student writes five or six sermons during the year, three of which are preached before the two upper classes and criticised by students and instructor; the rest are criticised privately, both as to composition and delivery, in preparation for the public preaching named below. This course may be taken twice. 10 Div.

Professor PRABODY. — The Minister as Pastor, and the history of Christian worship. One hour. 4 Div.

Professor PRABODY. — [The Minister as Preacher, and the history of Christian preaching. One hour.]

Mr. HALE. — The Minister as Organizer and Director of Church Activities. One hour. 4 Div.

ELOCUTION.

Dr. CUNY met the students, individually or in groups, for instruction in Vocal Training and Expression. Three hours. 14 Div.

GENERAL EXERCISES.

Evening Prayers, conducted by professors and students.

Worship and Preaching conducted by students in the Chapel of the School. Open to the public. Once a week.

Meetings for Religious Conference, conducted by students. Once in two weeks.

During the year beginning October 1, 1897, there were added to the Divinity Library by purchase, 361 volumes and 33 pamphlets; by gift, 182 volumes and 555 pamphlets; by transfer from the College Library, 671 volumes and 26 pamphlets. October 1, 1898, there were in the Library 28,710 volumes and 6,254 pamphlets. The books transferred from the College Library were in the department of the New Testament, so that now the books in this department belonging to the University are chiefly in the Divinity Library, though many duplicates and also some other volumes remain in the College Library. This is important as being the first attempt to draw a line of demarcation between the kind of books that should be placed in the Divinity Library and those that should be placed in the College Library.

During the year 2,408 titles were catalogued in the author catalogue, and 80 in the subject catalogue. As in the previous year, the time of the Librarian was largely given to the general catalogue of the School. The completion of this work will make possible more rapid progress in the cataloguing of the Library. During the year there were borrowed from the stack for home use 1,637 volumes; from the stack for hall use 453 volumes; and from the reserved books for one night use 784 volumes.

C. C. EVERETT, *Dean.*

THE LAW SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I have the honor of presenting my report upon the Law School for the academic year 1897–98.

The table on pages 162, 163 gives the courses of study and instruction during the year, the text-books used, the number of exercises per week in each course, and the number of students who offered themselves for examination in each course at the end of the year.

During the thirteen months from September 1, 1897, to October, 1898, 3,468 bound volumes and 770 pamphlets have been added to the library. The library contained, October 1, 1898, about 44,300 volumes and 5,200 pamphlets.

The table on the next page exhibits the growth of the School, during the last twenty-nine years, in the number of students, the number and percentage of college graduates, and in the number of colleges represented by their graduates. The figures for the current year will be increased by later entries.

The number of non-graduates in this table is somewhat misleading, since it includes 30 Harvard College seniors on leave of absence and registered in the Law School. Of these, 6 have completed all their college work but a course and a half, 8 all but a single course, 4 all but a half course, while 12 have fulfilled all the requirements for the degree of A.B. Transferring these seniors to the column of graduates, we have 529 graduates in the School, and the percentage of graduates rises from 89 to 94. A similar transfer of 12 seniors in the preceding class would give, for the year 1897–98, 502 graduates and a percentage of 91.

The registration of 30 seniors in the Law School indicates how rapidly the conviction is spreading that a young man should be able in some mode to complete the College course and the Law School course in six years. The reasonableness of this conviction, so long as the average age of admission to the College stands at 19, is obvious. But neither of the two methods of accomplishing the desired result that have been tried thus far, has stood the test of experience.

For some years prior to 1893 it was the common practice of college students who wished, as the phrase went, to save a year, to attend during their Senior and Junior years, the first-year courses of the Law School and to take, in the September following their graduation,

Year.	Whole No. of Students.	Total of College Graduates.	Harvard Graduates.	Graduates of other Colleges.	Non-Graduates.	Per cent. of College Graduates.	No. of Colleges represented.
1870-71	165	77	27	50	88	47	27
1871-72	188	70	34	36	68	51	28
1872-73	117	60	34	26	51	50	25
1873-74	141	86	49	37	55	61	25
1874-75	144	82	63	19	62	57	18
1875-76	178	93	60	33	80	51	26
1876-77	109	116	74	42	83	78	30
1877-78	196	121	80	41	75	62	30
1878-79	169	108	71	38	60	54	24
1879-80	177	118	90	28	59	66	20
1880-81	161	112	82	30	49	70	19
1881-82	161	99	66	33	59	61	22
1882-83	138	98	58	35	45	67	19
1883-84	150	105	75	30	45	70	25
1884-85	156	122	85	37	44	78	31
1885-86	158	131	88	39	40	77	30
1886-87	188	143	88	55	45	70	34
1887-88	225	156	102	56	67	70	32
1888-89	225	150	105	58	67	70	31
1889-90	262	189	122	67	73	78	41
1890-91	285	200	137	63	85	70	33
1891-92	370	257	140	117	118	69	48
1892-93	405	266	132	134	100	66	54
1893-94	507	279	190	160	88	76	56
1894-95	418	310	139	171	108	75	74
1895-96	475	380	171	209	95	80	82
1896-97	400	408	188	229	82	88	82
1897-98	551	490	229	261	51	89	77
1898-99	561	499	210	289	52	89	76

the examinations for advanced standing in the Law School. The Law School record of college students, who in this manner anticipated the first year of their law work, was so poor as to convince the Law Faculty that it was for the interest of the student and of the School to remove the opportunity for this anticipation. Accordingly in 1893 the privilege of taking advanced standing in the School was abolished except for persons who had been in regular attendance for an academic year at some other law school.

In consequence of this change a new mode of saving a year was introduced. The Faculty of Arts and Sciences, yielding to the pressure of their students, began the practice of granting leave of absence during the senior year to those who had crowded at least five-eighths of the work of that year into the preceding three years.

Instructors.	Studies and Text-books.	Exercises per week.	Number of students examined.
	First Year.		
Prof. Ames	Contracts. Cases on Contracts: Langdell, vol. 1, 2d ed., Williston, vol. 1 . .	3	212
Prof. Gray	Property. Gray's Cases on Property, vol. 1, 2	2	206
Prof. Smith	Torts. Cases on Torts: Ames, vol. 1, 2d ed., Smith, vol. 2	2	216
Prof. Beale	Civil Procedure at Common Law. Ames's Cases on Pleading	1	201
Prof. Beale	Criminal Law and Procedure. Beale's Cases on Criminal Law	2	208
	Second Year.		
Prof. Wambaugh	Agency. Wambaugh's Cases on Agency	2	126
Prof. Williams } Prof. Ames }	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes . .	2	88
Prof. Wambaugh	Contracts and Quasi-Contracts. Keener's Cases on Quasi-Contracts	2	14
Prof. Thayer	Evidence. Thayer's Cases on Evidence	2	162
Prof. Wambaugh	Insurance. No text-book	2	17
Prof. Langdell	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading . .	2	26
Prof. Williams } Mr. Dodge }	Property. Gray's Cases on Property, vol. 3, 4	2	160
Prof. Thayer	Sales of Personal Property. Williston's Cases on Sales	2	63
Prof. Ames	Trusts. Ames's Cases on Trusts (new edition)	2	160
Prof. Beale	Carriers. McClain's Cases on Carriers	1	89
Prof. Smith	Law of Persons. No text-book	1	37
Mr. Barbee	Suretyship. Ames's Cases on Suretyship	1	5

Third Year.

Prof. Beale	Conflict of Laws and International Law. No text-book	2	90
Prof. Thayer	Constitutional Law. Thayer's Cases on Constitutional Law	2	98
Prof. Smith	Corporations. Smith's Cases on Corporations	2	140
Prof. Langdell	Jurisdiction and Procedure in Equity. No text-book	2	58
Prof. Ames	Partnership. Ames's Cases on Partnership	2	116
Prof. Gray	Property. Gray's Cases on Property, vol. 5, 6	2	86
Mr. Barnes	Suretyship. Ames's Cases on Suretyship	1	8
Prof. Wambaugh	Agency. Wambaugh's Cases on Agency	2	82
Prof. Williams } Prof. Ames }	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes	2	81
Prof. Wambaugh	Contracts and Quasi-Contracts. Keener's Cases on Quasi-Contracts	2	16
Prof. Thayer	Evidence. Thayer's Cases on Evidence	2	8
Prof. Wambaugh	Insurance. No text-book	2	46
Prof. Langdell	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading	2	9
Prof. Williams } Mr. Dodge }	Property II. Gray's Cases on Property, vol. 3, 4	2	3
Prof. Thayer	Sales of Personal Property. Williston's Cases on Sales	2	34
Prof. Ames	Trusts. Ames's Cases on Trusts (new edition)	2	2
Prof. Beale	Carriers. McClain's Cases on Carriers	1	15
Prof. Gray	Comparative Jurisprudence. No text-book	1	
Prof. Smith	Law of Persons. No text-book	1	10
Prof. Williams	Roman Law — selected topics. No text-book	2	

The effect of this new method may be seen in the following tables, the first exhibiting the record of the anticipating seniors on the work of their three years in college, and the second giving the record of their first-year work in the Law School.

YEAR.	Total number of anticipating Seniors.	Number of these Seniors with no arrears of College work.	Number of these Seniors with arrears of College work.	Percentage of these Seniors having C, D or F in more than half their College work.	Percentage of these Seniors with complete College record having C, D or F in more than half their College work.	Percentage of these Seniors with incomplete College record having C, D or F in more than half their College work.
1893-94	6	2	4	16	0	25
1894-95	11	3	■	64	66	50
1895-96	20	8	12	55	50	58
1896-97	20	7	13	60	48	61
1897-98	12	3	9	50	0	66
1898-99	30	11	18	77	17	83

YEAR.	Percentage of students obtaining an average of A or B on first-year law work				
	of the whole class.	of Harvard Graduates.	of Harvard Seniors.	of Harvard Seniors with no arrears of college work.	of Harvard Seniors with arrears of college work.
1893-94	29	38	17	50	0
1894-95	19	32	0	0	0
1895-96	27	40	25	37	17
1896-97	20	31	15	14	15
1897-98	27	33	25	17	11

This is certainly a discouraging exhibit of the results of the second method of completing the College and Law School courses in six years. The practice of anticipating the whole or the greater part of the work of the senior year is no less a failure than the former practice of anticipating the first-year work of the Law School.

The conviction that the Harvard degree of A.B. should not be cheapened is so widespread and so deeply rooted, that there is little or no chance of the adoption of the plan of reducing the College course to three years. The only practical mode of saving a year in the period of college and professional study would seem, therefore,

to be by a modification of the present practice of granting leave of absence to seniors. If the leave of absence should be granted to all who had fully completed three years' work in college and who desired to enter one of the professional schools of the University, and if the Seniors on furlough should be required to pass satisfactory examinations in all of the first-year work of the professional school in which they registered, as a condition of receiving the degree of A.B. with their college class, the dignity of that degree would certainly not be lowered, and the desired object of saving a year would be accomplished. The Law Faculty would welcome the adoption of this plan.

If, however, the Faculty of Arts and Sciences is not yet prepared to go so far, the Law Faculty would be glad to coöperate with the Faculty of Arts and Sciences in establishing the principle that no person registered in one department of the University and working for a particular degree, shall be allowed to count any extra work in that or any other department towards any other degree. The adoption of this principle would eliminate from the Law School those seniors who register there under the present practice, although having arrears of college work to make up. The figures in the preceding tables justify the conviction of the Law Faculty that the Law School is no place for men who cannot give the whole of their study hours to law school work. This same principle, if adopted, would put an end also to the practice of law students obtaining the degree of A.M. by extra work, either in the Law School or in some other department of the University.

The following table shows the character of the total new entries of all kinds to December 1st for the last two years : —

YEAR.	Entries of all kinds.	Graduates of Colleges.	Harvard Graduates.	Graduates of other Colleges.	Harvard College Seniors.	Non-Graduates.
1897-98 . . .	254	224	94	130	13	17
1898-99 . . .	258	214	80	134	30	14

There is no reason to suppose that the new entries next year will be materially fewer than those of the current year. On the other hand, the third year class of next year can hardly fail to outnumber the present third year class by at least twenty-five. There are two reasons for this estimate. The present second year class is larger than that of last year; and this is the last year in which students may spend their third year away from the School and still obtain our degree.

The following table exhibits the representation in the School, since 1870-71, of the twelve colleges which have been its principal contributors.

YEAR.	Harvard.	Amherst.	Bowdoin.	Brown.	California.	Dartmouth.	Michigan.	Oberlin.	Princeton.	Trinity.	Williams.	Yale.
1870-71	27	4	2	2	1	6	..	..	2	..	3	5
1871-72	34	..	..	7	..	..	..	..	3	1	2	2
1872-73	34	..	1	7	..	..	1	..	1	..	..	2
1873-74	41	1	..	4	1	3	1	..	..	..	4	4
1874-75	41	..	..	..	1	1	..	..	..	..	1	3
1875-76	59	1	3	2	..	1	..	..	1	..	..	3
1876-77	72	3	1	3	..	..	1	..	3	..	1	2
1877-78	79	2	1	3	..	1	1	1	1	..	4	2
1878-79	68	4	3	2	..	3	1	2	2	..	..	4
1879-80	61	4	3	1	..	..	..	3	..	..	..	1
1880-81	82	4	1	3	..	1	..	1	..	1	..	4
1881-82	66	..	1	3	..	3	1	..	..	2	2	6
1882-83	59	1	..	1	..	1	1	1	..	1	..	2
1883-84	74	1	2	..	..	2	3	..	..	3	..	2
1884-85	87	2	1	2	..	..	3	1	..	1	..	3
1885-86	82	2	..	1	..	..	1	4	1	..	1	7
1886-87	86	5	1	3	..	2	2	6	1	1	1	8
1887-88	102	5	2	5	1	..	..	5	1	1	1	8
1888-89	102	9	1	5	1	1	1	2	1	..	..	3
1889-90	123	5	1	6	1	2	..	2	1	2	1	8
1890-91	137	5	..	7	..	3	2	..	3	3	5	7
1891-92	140	5	3	13	2	2	2	2	4	2	8	22
1892-93	132	9	3	11	4	5	4	..	4	2	7	22
1893-94	129	14	6	13	4	5	6	1	5	2	6	11
1894-95	139	16	2	11	7	8	2	2	6	3	7	20
1895-96	171	14	3	19	7	7	3	2	7	4	11	32
1896-97	186	13	6	17	7	11	3	2	15	3	11	32
1897-98	229	15	7	21	5	11	3	2	21	5	9	43
1898-99	210	19	12	15	6	12	2	4	23	3	8	61

In view of this prospective increase of numbers the time has come to make plans and estimates for the enlargement of Austin Hall. The Committee of the Board of Overseers to visit the Law School after alluding, in a recent report, to the Law School surplus added this statement: "The Committee would see, however, with much regret this fund applied, wholly or in large part, to the construction of a new building." Nothing could be more gratifying to the Law Faculty than the erection of the required new building in such a way

as to leave the surplus earnings of the School free for the increase of its intellectual resources.

It is a pleasure to mention a substantial addition to the fund of 'Scholarship Money Returned.' One of our graduates who has won a high position among the lawyers of New York, with a generous disregard of the usual correspondence between payment and repayment, has given to the School more than double what he received in scholarships. It is a noteworthy fact that a majority of those who have returned their scholarship money are now professors in law schools, and that all have had some experience in teaching law.

JAMES BARR AMES, *Dean.*

THE MEDICAL SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY : —

SIR, — As Dean of the Medical Faculty, I have the honor to submit the following report upon the Medical School for the academic year 1897-98 : —

Several changes have been made in the plan of instruction, which are mentioned in the reports of the different departments.

An advanced course in Anatomy and a course in Embryology have been added to the list of electives. Hygiene, which was an elective, has been made a required study. The report of one or more clinical cases has been made a part of the examination for the degree in elective Orthopedics and elective Ophthalmology.

Through the liberality of the Harvard Medical Alumni Association, four " Talks on the History of Medicine " were given to the students, on Thursday evenings in January, by Dr. David Hunt. Members of the medical profession were also admitted to these lectures.

The annual reception given by the Faculty to the Instructors of the School, the Committee to Visit the School, the Officers of the Alumni Association, the Superintendents of the Hospitals at which clinical instruction is given, and the medical members of the governing bodies of the University was held on Wednesday evening, October 27, and was fully attended.

By a vote of the Corporation, the Henry Williams Fund was appropriated as the endowment of the Williams Professorship of Ophthalmology, and the bequest of the late William Oxnard Moseley was appropriated as the endowment of the Moseley Professorship of Surgery.

Building. — Fan ventilation was introduced in the dissecting room. The apparatus consisted of a 60-inch electric exhaust fan operated by a three horse-power electric motor. The air was exhausted simultaneously from four ventilators in the roof. This apparatus worked perfectly, completely renewing the air in the room every five minutes, and prevented the dissemination of air from the dissecting room to other parts of the building. Heretofore whenever the dissecting room windows were opened, the air from the room was driven down the hot air pipes and through the hot air system to other parts of the build-

ing. It has also rendered it possible to properly heat the dissecting room as well as ventilate it.

A new projection lantern has been placed in Lecture Room C, for the use of the Anatomical and Pathological Departments. This lantern has a microscopic attachment, so that microscopic preparations on slides can be projected directly on the screen. By this means it is possible to demonstrate to a whole class at once microscopic sections of various kinds.

A new three horse-power motor has been placed in the anatomical assistant's room to operate the lathe and grinding machine.

The animal room in the basement of the Sears Building has been thoroughly cleansed and whitened during the past summer, and has been provided with new, galvanized iron, wire cages, in place of the old cages which were constructed partly of wood and which had become more or less contaminated.

Physiology.—The following investigations have been published :—

The recovery of the heart from fibrillary contractions, by W. T. PORTER. *The American Journal of Physiology*, Vol. I, pp. 71-82.

The nutrition of the heart through the vessels of Thebesius and the coronary veins, by F. H. PRATT. *The American Journal of Physiology*, Vol. I, pp. 86-103.

The influence of the heart-beat on the flow of blood through the walls of the heart, by W. T. PORTER. *The American Journal of Physiology*, Vol. I, pp. 145-163.

The effect of distention of the ventricle on the flow of blood through the walls of the heart, by Miss IDA H. HYDE. *The American Journal of Physiology*, Vol. I, pp. 215-224.

The reinforcement of voluntary muscular contractions, by ALLEN CLEGHORN. *The American Journal of Physiology*, Vol. I, pp. 336-345.

The movements of the stomach studied by means of the Röntgen Rays, by W. B. CANNON. *The American Journal of Physiology*, Vol. I, pp. 359-382.

The movements of the food in the oesophagus, by W. B. CANNON. *The American Journal of Physiology*, Vol. I, pp. 435-444.

The venomotor nerves of the hind limb, by F. W. BANCROFT. *The American Journal of Physiology*, Vol. I, pp. 477-485.

An analysis of the action of the vagus nerve on the heart, by L. J. J. MUSKENS. *The American Journal of Physiology*, Vol. I, pp. 486-510.

A new method for the study of the isolated mammalian heart, by W. T. PORTER. *The American Journal of Physiology*, Vol. I, pp. 511-518.

Studies of Infarctions in the heart, by Dr. W. Baumgarten; of the refractory period and compensatory pause, by R. S. Woodworth; of the path of nerves to the bladder, by Dr. C. C. Stewart, are being prepared for publication.

Investigations into the physiology of the depressor nerve, by A. L. Reagh; into the contractions of smooth muscle, by R. S. Woodworth; into the effect of toxins and animal extracts on the heart, by Dr. A. Cleghorn; into the effect of castration and of injection with testicular extract on growth and muscular activity, by Dr. A. Cleghorn; into the powers of muscular relaxation, by Dr. A. Cleghorn and Dr. C. C. Stewart have been undertaken but are not yet ready for publication.

At the Triennial International Congress of Physiologists, held in the University of Cambridge, England, Professor Bowditch demonstrated an apparatus to illustrate the movements of the eye in accordance with Listing's laws.

Professor Porter demonstrated the beating of extirpated parts of the mammalian ventricle when fed with defibrinated blood; the contractions of the severed apex of the dog's ventricle fed on blood serum alone; (with Mr. F. H. Pratt) the nutrition of the heart through the vessels of Thebesius; a new electrical pump and an electrical recording apparatus (the inventions of Mr. Hofmann, the mechanic of the laboratory).

The experimental work done by the students themselves has been doubled; it is now twelve times that done two years ago. Every first-year student is required to perform more than one hundred experiments on the physiology of nerve and muscle, the circulation, central nervous system, the special senses, etc. The great educational value of this work and the success with which it is pursued by the students has led the Department to request the further extension of experimentation by the students themselves.

The immediate direction of this work is in the hands of four Assistants in Physiology and forms a valuable part of their opportunities. The repetition of fundamental experiments by successive sections of the class and the great variety afforded by the large number of experimenters, secure to those in charge a thoroughness and breadth of training in elementary physiology not easily attainable in other ways. The holders of these positions give the mornings of the collegiate year to research. They are instructed in the ways of framing problems for investigation, in the principles of criticism, in the technical methods of research, and in the manner in which the results of an investigation should be put together for publication.

Instruction is offered also in methods of teaching, including the arrangement of lectures, the division of subject matter between the systematic course covering the entire field and the advanced special lectures, the physiological conference, the use of the projection lantern in physiological demonstration, and the demonstration of physiological experiments to large and small classes. The administration of a large department is explained. Attention is given to the cost of apparatus for instruction and research, the problems of construction and maintenance of plant, the care of storage batteries, the making of lantern slides, the cataloguing of physiological literature, the importation of apparatus, and many other details essential to the successful operation of a physiological laboratory. Men intending to devote themselves to clinical medicine of course give less time to these things and concern themselves chiefly with matters bearing directly on their chosen work. It is evident that these appointments afford an admirable training to those intending to make physiology or any other of the biological sciences a profession. To the physician they offer a training not less valuable in the opinion of those who believe that research in the fundamental studies is the best introduction to the higher walks of medicine.

An active part has been taken in the founding of an American Journal of Physiology, the first number of which appeared January 8, 1898. Volume one has been completed. The Journal has gained a distinguished position in America and in other countries.

Anatomy. — A new feature last year was the fourth year elective course in Anatomy, which was taken by eleven students, whose work was eminently satisfactory. It was abundantly shown that the course is both desirable and profitable.

Last spring demonstrations were given to sections of the first class on the larynx, the eye and the ear.

During the past summer arrangements have been made for facilitating and extending the system of loaning bones to first year students for private study.

A modification of the anatomical law of the State was passed by the Legislature which, it is believed, when fuller practical arrangements have been effected, will considerably increase the amount of dissecting material. Should these hopes be realized, greater laboratory room will be very desirable, if not imperative.

Histology and Embryology. — The collection of preparations for class instruction has been again extended and greatly improved, and now numbers over 10,000 microscopical slides.

During the past year a systematic histological collection has been

begun, which is intended to afford ultimately a complete illustration of microscopical anatomy. A large number of preparations are already completed, but until means are secured to catalogue and arrange them, this collection must lack much of its possible usefulness, as a centre of reference and consultation.

The embryological collection begun last year, has grown steadily, partly owing to the second gift of two hundred dollars from Mr. Walter G. Chase. It now comprises complete serial sections of two hundred embryos. It is in constant use for several lines of research.

Dr. Harris Kennedy presented a set of the Ziegler models, illustrating the development of the human uro-genital system. One of the greatest needs of the laboratory is a supply of other sets of models, which would be of such high value in teaching, that they are felt to be almost indispensable.

Professor Minot has issued the following investigations:—

Cephalic Homologies. A contribution to the determination of the ancestry of vertebrates. *American Naturalist*, Vol. XXXI, 927-943. (Also translated into French, under the title "Contribution à la détermination des ancêtres des Vertébrés." *Archives Zoöl. Experimentale*, Ser. III, Tome V, 417-436.

Die frühen Stadien und die Histogenese des Nervensystems. *Ergebnisse der Anat. u. Entwicklungsges.*, VI, 687-738.

On the veins of the Wolffian body in the pig. *Proc. Boston Soc. Nat. Hist.*, XXVIII, 265-274, Pl. I.

He has also carried forward other researches and made considerable progress in the preparation of an introduction to Embryology, based on the development of the pig.

Dr. A. Schaper has issued the second American edition of Stohr's Text-book of Histology.

He has further continued his researches on the comparative morphology of the cerebellum.

He has published the following papers:—

Experimental studies on the influence of the central nervous system upon the development of the embryo. *Journal Boston Soc. Med. Sci.*, 1898.

Ein neuer Apparat zur Application electrischer Ströme auf mikroskopische Objecte. *Zeitschr. wiss. Mikr.*, XIV, 1898.

The finer structure of the Selachian cerebellum (*Mustelus vulgaris*) as shown by chromo-silver preparations. *Journal Comp. Neurol.*, VIII, 1898.

Dr. Elisha H. Gregory has carried on a research on the development of the cerebrum, which is not yet completed.

The resignation of Dr. H. P. Quincy, who has been an instructor in the Department since its foundation, deprives the Laboratory of highly valued and skilled service, which has contributed very much to the growth of the Department.

The fourth year elective course in Embryology which was offered for the first time, was taken by four students.

Bacteriology.—The following is a brief summary of the work carried on in the Bacteriological Laboratory during 1897-98, in addition to the regular routine of teaching:—

Dr. Ernst retained control of the production of the antitoxine of Diphtheria and the cultural diagnosis of suspected cases of sore throat for the Boston Board of Health until the spring. The work was then transferred to the new municipal laboratory. In the time this work was under Dr. Ernst's control, over 25,000 cultures were examined, and over 10,000 cases of diphtheria were treated with the antitoxine prepared in the laboratory.

Dr. Ernst completed an elaborate summary of the work done on "Infection and Immunity," published under that title in the *Twentieth Century Practice of Medicine*, and the chapter on Surgical Bacteriology to be published immediately as the opening chapter in the *International Encyclopedia of Surgery*.

He has given much time and thought to the advancement of the interests of the *Journal of the Boston Society of Medical Sciences*, which is likely to be an important factor in advancing the interests of the School, containing as it does, at least a brief account of all the work done in the laboratories of the School and its allies.

Much of the following work was done under his supervision:—

Dr. A. K. Stone carried out an investigation on the virulence of the bacilli in cases of diphtheria presenting no clinical symptoms. The results of this investigation were published in the *Journal of the Boston Society of Medical Sciences*, and in the report of the Boston Board of Health, 1897.

Dr. Stone also undertook a short investigation as to the sterility of glycerinated vaccine virus furnished by various foreign vaccine institutes. He has also been engaged in the preparation of various toxins for certain experiments upon the mammalian heart.

Dr. E. A. Darling has carried on previous studies on the etiology of vaccinia, as well as brief series of experiments on the effect of glycerine on vaccine virus, and on the action of glycerine as a bactericide.

Dr. J. N. Coolidge, in connection with Dr. H. A. Cooke, has studied the effect of repeated freezing on the anti-diphtheritic serum (published in the *Journal of the Boston Society of Medical Sciences*, and in the *Transactions of the Association of American Physicians*), and is engaged in carrying on certain branches of the work of Dr. Hopkins on the bacteria of the mouth.

Dr. S. A. Hopkins has continued his studies of the bacteria of the mouth, a small part of the work having been completed and published under the title "A Peculiar Form of Mouth Bacterium." (*Journal of the Boston Society of Medical Sciences; Transactions of the Association of American Physicians.*) Dr. Hopkins also made some experiments with formalin fumes, showing that yeast forms could be grown in a formalin vapor sufficiently strong to kill ordinary bacteria. The attempt is to be made to trace the influence of the bacteria on the teeth, and the part they play in producing caries of the teeth.

Dr. C. G. Page has continued his studies of the streptococci found in scarlatinal sore throats.

Mr. F. P. Gorham, Instructor in Bacteriology in Brown University, carried to completion a study of "A New Pathogenic Chromogenic Bacillus." (*Journal of the Boston Society of the Medical Sciences; Transactions of the Association of American Physicians.*)

Dr. F. P. Denny made a long series of experiments upon the pigment produced by this new bacillus, and is just beginning a study of the occurrence and possible alcohol producing powers of the *Bacillus Coli Communis*.

Dr. H. A. Cooke made a study of a peculiar spore-producing bacillus found in the sputum of a person suspected of pulmonary tuberculosis; this bacillus manifesting the same color reaction as the bacillus of tuberculosis.

Dr. David D. Brough made an elaborate series of investigations on "The Value of Formalin as a Germicide." (*Transactions Massachusetts Medical Society; Report of the Boston Board of Health.*)

Mr. John G. Hubbard began a study, in connection with Dr. Ernst, of the "Jolly-Sambra" process of color photography, in an attempt to apply it to the microscope. The preliminary results were shown at a meeting of the Boston Society of Medical Sciences, and of the Association of American Physicians.

Dr. F. P. Putnam made a study of the action of Arsenious Acid upon the growth of the Typhoid Bacillus and the *Bacillus Coli Communis*.

Mr. A. B. Cunningham began a study of an infectious disease of the trout, which it is hoped to carry on during the winter.

Assistant Professor Marshall A. Barber, of the University of Kansas, investigated the effects of moulds on the morphology and virulence of certain of the pathogenic bacteria, the results of which it is hoped will soon be published.

Chemistry. — The laboratory has been overcrowded, as during the last few years. It has been necessary to provide desk room for three hundred and five students in the space originally planned for two hundred. During the past year there were two hundred and eighty-four students (including graduates) and twenty-one veterinary students working in the laboratory throughout the year. More room is needed both for the routine work of the classes and for special investigations.

The course of instruction to the first class was changed very materially in 1896-97. The course in General Chemistry to students conditioned in this subject was finally abolished, and conditioned students were provided with laboratory facilities in the laboratory of the Dental School, on North Grove Street, on the payment of a special fee.

The laboratory instruction in Physiological Chemistry, formerly taught in the physiological laboratory, was transferred to the chemical department, and first-year students have been given a thorough course in Physiological Chemistry, including the chemistry of the carbohydrates, proteids and fats, the chemistry of digestion and other physiological processes, and the chemistry and microscopy of the urine. Each student has been required to work two hours per week during the entire year, instead of during the second half-year as before.

Professor Wood has been engaged in investigations upon albuminuria. These investigations are nearly completed and the results will be published during the coming year.

Publication of special investigations in the Chemical Laboratory are as follows: —

Contributions to the Detection of Arsenic in Medico-Legal Cases in which the Cadaver has been Embalmed with Arsenical Solutions. By Professor WOOD. *Journal of the Boston Society of Medical Sciences*, March, 1897.

Description of the largest Cystin Calculus ever reported. By Professor WOOD. (The Calculus was removed by Prof. J. C. WARREN.) *Journal of the Boston Society of Medical Sciences*, February, 1898.

Effect of Ether on the Kidneys. By Dr. J. B. OGDEN. *Journal of the Boston Society of Medical Sciences*, June, 1897.

Haematoporphyrinuria, with the report of a case. By Dr. J. B. OGDEN. *Boston Medical and Surgical Journal*, February 24, 1898.

Pyonephrosis. By Dr. J. B. OGDEN, with Drs. A. H. TUTTLE and EDWARD REYNOLDS. *Boston Medical and Surgical Journal*, February 24, and March 8, 1898.

Cystinuria. By Dr. J. B. OGDEN. *Boston Medical and Surgical Journal*, April 21, 1898.

An Important Element in the Diagnosis of Tuberculosis of the Urinary Tract. By Dr. J. B. OGDEN. *Medical and Surgical Reporter*, March 12, 1898.

Dr. H. F. Hewes has pursued his work upon the chemistry of the gastric contents, and the micro-chemical reactions and microscopy of the red and white blood cells, the results of which have been published as follows:—

Fifty Normal Blood Counts. *Journal of the Boston Society of Medical Sciences*, May, 1897.

The Analysis of the Gastric Contents. *Boston Medical and Surgical Journal*, November 25 and December 2, 1897.

The Analysis of the Gastric Contents of Fifty Healthy Individuals. *Journal of the Boston Society of Medical Sciences*, April, 1897.

On the Classification of the Leucocytes for Clinical Work. *Journal of the Boston Society of Medical Sciences*, February, 1898.

Urticaria of the Tongue associated with Achlorhydria. *Journal of the Boston Society of the Medical Sciences*, May, 1898.

Experimental Pharmacology.—Dr. Pfaff, with Dr. J. J. Putnam, studied the urines of patients suffering from migrainous headaches and epilepsy. Seven thousand litres of urine, obtained partly from private patients suffering from the above complaints, and partly from inmates of city and state prisons, were used in the work, which will be completed during the coming year.

Dr. A. W. Balch continued the research of the different species of *Rhus*.

Dr. Pfaff wrote the article on Pharmacology of Anaesthetics for the *International Encyclopedia of Surgery*.

Mr. M. P. Vejux-Tyrode made a comparative study of two varieties of *Strophantus*. The result of his work is now in the hands of the printer.

Dr. W. F. Boos has been engaged in the study of the active principle of *Zygadenus Tremontii* and *Zygadenus Venenosus*.

Drs. Pfaff and E. P. Joslin have studied the influence of bile upon the absorption of fats. The experiments were made on man and dog. The results of this research are soon to be published.

Pathology. — A change has been made in the mode of conducting the demonstrations in pathological anatomy which will add to their efficiency. The class has been divided into sections of twenty-five, to whom pathological specimens are demonstrated and explained, the demonstrators passing to each section in turn. This method substitutes individual for class instruction.

In the past year the Pathological Department has received fifteen hundred dollars from Dr. H. F. Sears. Five hundred of this has been expended on the library, and the remainder will be used in providing for certain publications to be issued from the department.

During the year the following articles have appeared or have been accepted for publication : —

Acute Intestinal Nephritis. By Dr. W. T. COUNCILMAN.

The Relation of Pathology to Medicine. By Dr. W. T. COUNCILMAN.

A Histological Study of Typhoid Fever. By Dr. F. B. MALLORY.

A Case of Mycetoma (Madura Foot). By Dr. J. H. WRIGHT.

Tubercular Disease of the Bones and Joints. By Dr. E. H. NICHOLS.

The Pathology of Acute Infectious Osteomyelitis. Dr. E. H. NICHOLS.

Epidemic Cerebrospinal Meningitis. By Dr. A. H. WENTWORTH.

The Minute Anatomy of the Oblongata and Pons of the Chimpanzee, with special reference to their homologies with man. By Dr. E. W. TAYLOR.

Tumors of the Frontal Lobes, with special reference to a case with predominant symptoms of a neurasthenic type. By Dr. E. W. TAYLOR.

Gumma of the Fourth Ventricle. By Dr. E. W. TAYLOR.

Comparative Pathology. — The chief benefit to be derived from this department will consist in the opportunities offered to students and graduates in the laboratory for the comparative study of disease processes in animal life which have a direct bearing on the unsettled problems in human medicine. Pending the enlargement and proper equipment of the laboratory, an elective course of lectures is temporarily offered during the second term on the comparative etiology of Infectious Diseases.

During the past year one graduate student has been at work in the laboratory, and the following articles have been published by Professor Theobald Smith : —

One of the conditions under which discontinuous sterilization may be ineffective. *Journal of Exper. Med.*, 1898 (in press).

Variations in the pathogenic power of tubercle bacilli. *Trans. Amer. Climatolog. Assoc.*, 1898.

Much time was spent during the past year upon investigations which are nearly completed and which will appear during the present school year.

Surgical Pathology.—The changes made in the Department of Surgery during the past year were important.

The course of instruction begins in the second year. It consists in recitations in Surgical Pathology during the first term, and in a laboratory course in Surgical Pathology in the second. In the laboratory the student is enabled to study those subjects which help to fit him for hospital work later on. In this year the student is thoroughly grounded in the principles of Surgery.

In the third year lectures are given by the Professor of Surgery on special and regional Surgery at the School. These lectures are supplemented by clinical lectures at both hospitals and by recitations. The course last year was so arranged that the clinical lectures illustrated the systematic lectures which immediately preceded them. The recitation is an examination of the work of the previous two weeks. The student is thus given systematic training in the practical side of Surgery and is prepared for the purely clinical studies of the fourth year.

Recent bequests and donations make it possible to announce that a Surgical Laboratory devoted to original research in Surgery will soon be organized in this department.

Hygiene.—The research on the disinfectant properties and penetrating power of Formaldehyde gas, referred to in the last preceding report, was published in the January number of the *American Journal of the Medical Sciences*.

Another research referred to, on the sterilization of surgical instruments and catgut, was finished in February and published in the May number of the same Journal.

Dr. Harrington has been engaged in the study of the practical value of the many commercial disinfectants which are so generally used in the sick room for destroying pathogenic and other organisms in the waste products of the body. The test objects employed thus far include typhoid feces, tuberculous sputum, and diphtheritic membrane. The research is still in progress. Dr. Harrington is also engaged in the study of the action of drinking waters on composition water pipes.

Museum. — The chief work of the year has been on the card index of the specimens with numerous cross references. The entire collection, with but few exceptions, has been gone over, and it will be completed this year. A type-written copy of the written part of the catalogue has also been made. This has been done as a safeguard against accident, and also to permit the history of specimens to be used separately in the lecture rooms.

The Kaiserling preparations, mentioned in the last report, have stood the test of time very well, as a whole; but they have lost color a little as was expected. The chief addition to the collection has been in this direction, and three of the cases have already been filled. It is probable that these preparations will have to be replaced from time to time as they fade out.

The collection has been enriched by fifty calculi which were removed by the late Dr. H. J. Bigelow, and other single specimens have been given by persons not directly connected with the School. The collection has been drawn upon for the purpose of obtaining illustrations for articles which have been written and for daily study by the students.

Scholarships. — During the year two new Scholarships have been established.

The Charles B. Porter Scholarship was founded under the will of the late William L. Chase, and one of the three Hilton Scholarships was assigned by the Corporation, until further notice, to the Medical School. This year these Scholarships were awarded to members of the first class by a special vote of the Faculty.

The Scholarships and Fellowships were awarded as follows: —

Barringer Scholarship, No. 1,	W. P. Graves, A.B.,	8d Class.
Isaac Sweetser Scholarship,	W. B. Cannon, A.B.,	2d "
Claudius M. Jones "	B. Collins, A.B.,	2d "
Barringer " No. 2,	M. Ladd, A.B.,	4th "
Alfred Hosmer Linder Scholarship,	G. B. Magrath, A.B.,	4th "
Faculty Scholarship,	J. T. Callahan,	8d "
" "	H. G. Wyer, A.B.,	2d "
" "	D. C. Greene, Jr., A.B.,	8d "
" "	C. H. Turner, A.B.,	4th "
Eveleth "	H. L. Sanford, A.B.,	2d "
" "	L. R. G. Crandon, A.B.,	4th "
" "	W. Healey, Jr.,	2d "
Edward Wigglesworth Scholarship,	F. H. Haskins, A.B.,	8d "
Orlando W. Doe "	G. C. Wilkins,	8d "
Charles Pratt Strong "	C. B. Wormelle,	4th "
Hilton "	A. D. Brewer, A.B.,	1st "
Cheever "	H. B. Jackson, A.B.,	1st "
Charles B. Porter "	E. A. Locke, B.P., A.M.,	1st "
Hayden "	E. J. Davis, A.B.,	8d "

The George Cheyne Shattuck Fellowship was awarded Dr. Alfred Schaper for the continuation of his work on the cerebellum.

The John Ware Fellowship was awarded Mr. A. W. Balch for the continuation of his studies on corn ergot and other researches.

The Charles Eliot Ware Fellowship was awarded Mr. G. B. Magrath for the study of the pathological anatomy of the arteries.

No essays were submitted for the William H. Thorndike Prize.

The statistics of the School will be found in the following tables: —

COURSES OF INSTRUCTION, 1897-98.

FIRST YEAR.

Anatomy. — Professor T. DWIGHT, Asst. Professor DEXTER, Demonstrator BROOKS, Instructor TENNEY, Assistant LUND, Assistant LOTHROP, Assistant BLAKE, Assistant LOHING, Assistant YOUNG. 161 students examined.

Physiology. — Professor H. P. BOWDITCH, Asst. Professor W. T. PORTER, Assistant MUSKENS, Assistant BAUMGARTEN, Assistant STEWART, Assistant WOODWORTH. 144 students examined.

Histology and Embryology. — Professor MINOT, Demonstrator SCHAPER, Instructor QUINCY, Assistant AXES, Instructor GREGORY. 142 students examined.

Physiological Chemistry. — Associate Professor HILLS, Assistant BACON, Assistant OGDEN, Assistant EWALD. 143 students examined.

Bacteriology. — Professor ERNST, Assistant STONE, Assistant COOLIDGE, Assistant DARLING. 144 students examined.

SECOND YEAR.

Advanced Anatomy. — Professor T. DWIGHT, Asst. Professor DEXTER. 134 students examined.

Pathology and Pathological Anatomy. — Professor COUNCILMAN, Asst. Professor MALLORY, Instructor TAYLOR, Instructor WRIGHT, Assistant NICHOLS, Assistant FROTHINGHAM, Assistant WENTWORTH. 157 students examined.

Clinical Chemistry. — Professor WOOD, Assistant OGDEN, Assistant HEWES. 136 students examined.

Therapeutics. — Instructor HARRINGTON, Instructor PRAFF, Assistant JORDAN. 153 students examined.

Theory and Practice. — Professor FITZ, Instructor CUTLER.

Clinical Medicine. — Professor SHATTUCK, Associate Professor MASON, Instructor GANNETT, Instructor WITHERINGTON, Instructor V. Y. BOWDITCH, Instructor SEARS, Instructor VICKERY, Instructor JACKSON, Assistant KNIGHT, Assistant MORSE.

Surgery and Clinical Surgery. — Professor WARREN, Professor C. B. PORTER, Assistant MIXTER, Assistant WATSON, Instructor HOMANS, Instructor GAY, Asst. Professor BURRELL, Instructor MONKS, Assistant SCUDDER, Assistant LOVETT, Assistant THORNDIKE, Assistant CONANT, Instructor C. A. PORTER, Instructor MUNRO, Assistant MUMFORD, Assistant DWIGHT, Assistant PAINTER.

THIRD YEAR.

- Theory and Practice of Medicine.** — Professor FITZ, Instructor CUTLER.
136 students examined.
- Surgery.** — Professor WARREN, Assistant CONANT, Assistant WATSON, Assistant SCUDDER, Instructor HOMANS, Assistant LOVETT, Instructor C. A. PORTER.
137 students examined.
- Obstetrics.** — Professor W. L. RICHARDSON, Asst. Professor C. M. GREEN, Instructor REYNOLDS, Assistant HAVEN, Assistant HIGGINS, Assistant NEWELL.
136 students examined.
- Clinical Obstetrics.** — Professor W. L. RICHARDSON, Asst. Professor C. M. GREEN, Instructor REYNOLDS, Assistant HAVEN, Assistant HIGGINS, Assistant NEWELL.
- Dermatology.** — Professor WHITE.
143 students examined.
- Diseases of the Nervous System.** — Professor PUTNAM, Instructor WALTON, Instructor KNAPP, Instructor PRINCE.
138 students examined.
- Diseases of Children.** — Professor ROTCH, Instructor BUCKINGHAM, Assistant WENTWORTH, Assistant CRAIGIN.
179 students examined.
- Mental Diseases.** — Lecturer FISHER, Instructor COWLES.
132 students examined.
- Gynaecology.** — Asst. Professor DAVENPORT, Instructor HAVEN, Assistant SWIFT, Assistant REYNOLDS.
131 students examined.

FOURTH YEAR.

- Clinical Surgery.** — Professor C. B. PORTER, Asst. Professor BURRELL, Asst. Professor M. H. RICHARDSON, Assistant MONKS, Assistant LOVETT, Assistant THORNDIKE, Assistant CONANT, Instructor MUNRO, Assistant SCUDDER, Assistant E. W. DWIGHT, Assistant MUMFORD.
135 students examined.
- Clinical Medicine.** — Professor SHATTUCK, Associate Professor MASON, Instructor GANNETT, Instructor WITHINGTON, Instructor V. Y. BOWDITCH, Instructor VICKERY, Assistant KNIGHT, Instructor SEARS, Instructor JACKSON, Assistant MORSE, Instructor MCCOLLOM.
136 students examined.
- Ophthalmology.** — Professor WADSWORTH, Assistant STANDISH, Assistant CHENEY, Assistant JACK.
134 students examined.
- Otology.** — Professor BLAKE, Professor J. O. GREEN, Assistant HAMMOND, Assistant CROCKETT.
134 students examined.
- Laryngology.** — Instructor DEBLOIS, Instructor FARLOW, Instructor COOLIDGE.
137 students examined.
- Legal Medicine.** — Professor DRAPER, Assistant E. W. DWIGHT.
133 students examined.
- Syphilis.** — Instructor POST.
141 students examined.
- Orthopedics.** — Asst. Professor BRADFORD.
127 students examined.
- Hygiene.** — Instructor HARRINGTON.
136 students examined.

Electives.

- Ophthalmology.** — Professor WADSWORTH, Assistant STANDISH, Instructor CHENEY, Assistant JACK.
5 students examined.

Otology. — Professor BLAKE, Professor J. O. GREEN, Assistant HAMMOND, Assistant CROCKETT.	1 student examined.
Dermatology. — Professor WHITE, Instructor BOWEN.	54 students examined.
Diseases of the Nervous System. — Professor PUTNAM, Instructor WALTON, Instructor KNAPP, Instructor PRINCE.	26 students examined.
Gynaecology. — Asst. Professor C. M. GREEN.	22 students examined.
Operative Obstetrics. — Asst. Professor C. M. GREEN, Instructor REYNOLDS, Assistant HIGGINS, Assistant NEWELL.	79 students examined.
Operative Surgery. — Professor C. B. PORTER, Asst. Professor BURRELL, Assistant MIXTER, Instructor MONKS, Assistant LOVETT, Assistant THORNDIKE, Assistant CONANT, Assistant SCUDDER.	71 students examined.
Bacteriology. — Professor ERNST, Assistant STONE, Assistant COOLIDGE, Assistant DARLING.	27 students examined.
Orthopedics. — Asst. Professor BRADFORD.	10 students examined.
Clinical Microscopy. — Curator WHITNEY.	4 students examined.
Chemistry. — Professor WOOD, Assistant HEWES.	19 students examined.
Anatomy. — Asst. Professor DEXTER.	11 students examined.
Physiology. — Professor BOWDITCH, Asst. Professor W. T. PORTER.	1 student examined.
Embryology. — Professor MINOT, Demonstrator SCHAPER.	4 students examined.

TABLE I.—GENERAL STATISTICS OF THE SCHOOL.

EXAMINATIONS FOR ADMISSION.

		Physica.	Latin.	Eng- lish.	Elec- tive 1.	Elec- tive 2.	Gen. Chem.	Qual. Analysis.	
1897.	June	Offered	58	59	58	55	58	46	28
		Conditioned	12	17	12	6	4	9	14
	Sept.	Offered	38	45	40	26	30	57	44
		Conditioned	3	11	8	6	1	11	9

New matriculants . . . 154 { Graduates in Medicine 11
 Undergraduates 148
 Of these 50 % presented a degree in Letters, Science, or Medicine.

The whole number of students in attendance : —

In courses for graduates	59
Fourth Class	117
Third Class	119
Second Class	148
First Class	160
Total	603

	3 yrs. Course.	4 yrs. Course.
Applicants for Degree	2	137
Rejected	0	13
Graduated	2	124

Of the 124 students who received the degree of Doctor of Medicine in the four years' course, 57 received the degree *cum laude*.

	SUMMER COURSES.					GRADUATE COURSES.				
	1894.	1895.	1896.	1897.	1898.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
Courses taken	101	110	116	130	118	82	95	106	175	114
Students	93	89	100	110	107	53	50	58	75	60
Receipts	\$2355	\$2725	\$2972	\$3129	\$3360	\$2010	\$2313.33	\$2520	\$3810	\$3780

TABLE II.—FINAL EXAMINATIONS.

	First Class.						Second Class.							
	Histology.	Berthelology.		Physiology.		Chemistry.	Anatomy.	Physiology.		Chemistry.	Path. Anatomy.		Adv. Anatomy.	Therapies.
		\$	\$	\$	\$			\$	\$		\$	\$		
1894 { Passed	80	96	13	74	25	80	112	24	94	29	17	89	13	73
	33	15		25		27	35		19	18		14		21
	Total	112	111		99		107	147	113	107		103		109
1895 { Passed	129	127		119		116	114		82	87		86		83
	20	32		49	25	43	38		10	33		9		41
	Total	149	159		168		164	152	92	120	23	95		90
1896 { Passed	142	146		136		132	123		125	131		110		112
	15	9	6	27	16	40	39	24	22	23		33	20	63
	Total	157	154		163		173	161	146	154	16	143		180
1897 { Passed	136	111		136		112	126		123	104		110		108
	11	31	23	24	15	67	36	23	17	26		31	22	64
	Total	147	142		160		180	162	140	130	26	141		172
1898 { Passed	129	117		119		121	120		120	107		99		111
	13	27	18	24	18	40	34	18	16	50	20	25	20	41
	Total	142	144		143		161	154	136	157		124		152

TABLE II. — FINAL EXAMINATIONS, CONTINUED.

	THIRD CLASS.										FOURTH CLASS.						
	Theory and Practice.	Surgery.	Gynaecology.	Diseases of Children.	Dermatology.	Gynaecology.	Nervous Diseases.	Mental Diseases.	Clinical Medicine.	Clinical Surgery.	Ophthalmology.	Otology.	Laryngology.	Legal Medicine.	By-paths.	Orthopedics.	Hygiene.
1894																	
Passed	111	99	108	30	1	71	8		108	104			4	8			
Rejected	2	13	11	0	0	0	0		3	10			0	0			
Total	113	112	119	30	1	79	8		111	114			4	8			
1895																	
Passed	85	94	89	98	49	57	71	61	16	11			7	12			
Rejected	4	10	31	1	13	1	10	0	7	5			1	1			
Total	89	104	119	99	61	64	81	61	22	16			8	13			
1896																	
Passed	95	83	83	62	82	80	76	87	97	100	72	97	94	93	95	92	0
Rejected	6	12	8	28	31	9	17	2	4	2	20	2	0	0	0	0	
Total	101	95	91	90	103	89	93	89	101	102	92	99	94	93	95	92	
1897																	
Passed	128	122	123	66	125	136	131	136	69	83	72	91	94	93	93	89	1
Rejected	14	19	18	65	22	8	15	0	7	11	26	2	2	3	1	1	
Total	142	141	141	131	147	144	146	136	76	94	98	93	96	96	94	90	
1898																	
Passed	126	128	118	154	115	121	124	123	122	130	115	132	122	134	139	127	120
Rejected	10	8	18	25	28	10	7	4	14	6	19	2	15	4	2	0	10
Total	136	137	136	179	143	131	131	127	136	136	134	134	137	138	141	127	130

TABLE II.—FINAL EXAMINATIONS, CONTINUED.

FOURTH CLASS—ELECTIVES.																														
		Ophthalmology.		Otolaryngology.		Gynecology.		Dermatology.		Diseases of Nervous System.		Operative Obstetrics.		Operative Surgery.		Bacteriology.		Orthopedics.		Clinical Microscopy.		Chemistry.		Anatomy.		Physiology.		Embryology.		
		\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	\$	¢	
1894	Passed	5	0	8	0	19	8	6	0	8	0	18	0	10	1	20	1													
	Rejected	0	0	0	0	3	14	0	0	0	0	1	6	1	10	1														
	Total	5	0	8	0	22	22	6	0	8	0	19	6	11	2	31	2													
1895	Passed	1	0	16	0	9	2	9	18	2	60	18	7	7	2	23	3	11												
	Rejected	0	0	0	0	0	0	2	18	1	1	1	7	2	23	3														
	Total	1	0	16	0	9	2	11	36	3	61	19	14	9	25	6														
1896	Passed			64	7	17	2	7	12	58	2	20	0	20	0	21	5													
	Rejected			5	6	2	10	1	1	3	6	2	6	0	0	1														
	Total			69	13	19	12	8	13	61	5	20	0	21	6															
1897	Passed	5	0	1	0	26	15	6	0	6	0	56	31	46	3	45	1	2												
	Rejected	0	0	0	0	5	15	0	0	0	0	23	31	6	6	1														
	Total	5	0	1	0	31	30	6	0	6	0	79	62	52	6	46	2													
1898	Passed	5	0	1	0	19	14	45	9	21	19	71	10	70	1	24	11													
	Rejected	0	0	3	14	9	16	5	5	5	19	8	10	1	1	3	11													
	Total	5	0	22	28	54	25	26	24	24	38	79	20	71	2	27	22													

The great need of the School is an increase in the space devoted to the several laboratories. There is not room enough for the proper accommodation of the regular students of the School, and much additional space is needed for graduate students and for special investigations. The lecture rooms are also overcrowded. It would seem as if steps should at once be taken with a view to either enlarging the present building, or obtaining a new site on which a much larger and commodious structure can be erected.

WILLIAM L. RICHARDSON, *Dean.*

THE DENTAL SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—As Dean of the Dental Faculty I have the honor of presenting my report upon the Dental School for the academic year 1897-98:—

One hundred and thirty-two students matriculated, distributed as follows:—

Seniors	44	Freshmen	47
Juniors	39	Graduate Students	2

During the year five students withdrew from the School, three on account of financial troubles, one on account of ill health, and one to enter the McGill Medical School, thus leaving one hundred and twenty-seven students who completed the course. Of the forty-three candidates for the degree thirty-seven were successful, four of the number receiving their degree out of course.

The residences of the 132 men who registered were distributed as follows:—

New England States . . .	110	New Brunswick	2
Middle States	1	Nova Scotia	2
Southern States	2	P. E. Island	1
Western "	3	New Zealand	1
England	5	Australia	2
Canada	2	Russia	1

The important changes made in the Course of Instruction are as follows:—

In Physiology the laboratory course has been increased by 100 experiments.

In Anatomy the dissection of two parts of the cadaver has been made obligatory, and no student is permitted to take the examination unless his dissections are satisfactory to the Professor of Anatomy.

Catalogue.—In the early part of 1896 the President suggested the publishing of a Quinquennial Catalogue. The Dean made known this suggestion to the Alumni Association, who promptly acted upon the matter, and instructed the Secretary to prepare the catalogue for publication. Dr. Boardman entered at once upon the work, and after a most thorough and exhaustive research, covering a period of

eight months, produced a catalogue that is a credit to himself and of great value to the school.

Museum and Library. — The Museum has been enlarged by the addition of twenty-six specimens illustrating pathological conditions of the mouth and teeth.

The small library has been regenerated. Seventy-eight books have been returned to the School from the Medical Library Association where, by vote of the Faculty, they were deposited some years ago. Thirty-four new volumes have recently been added by binding the various numbers of periodicals that have been given to the School by the Alumni; and there are some twenty volumes of miscellaneous books, making a total of one hundred and thirty-two volumes.

Alumni Day was observed at the school building for the second consecutive time on Monday, June 27, with an attendance of one hundred and forty-three. Work of the classes was shown, papers were read, and clinics given by past graduates, and the present methods of teaching were explained to the Alumni. The banquet in the evening was largely attended, and the Secretary reports that the meeting was the most successful within the Association's history, that the treasury was shown to be in a flourishing condition, and that the interest in the School of every member of the Association is greater than ever and is increasing.

Emergency Corps. — In March 1897 the Faculty voted to organize an Emergency Corps to be formed from selected men from the Senior class, for the purpose of giving dental aid to the sick poor at their homes or in the hospitals of the city. This work was entrusted to a Committee consisting of Dr. Potter (chairman), Dr. Smith, and Dr. Stanton. Fifteen men were selected and a complete set of instruments, together with medicine cases and leather bags were provided. The chairman of the Committee gave special attention to the corps, instructing them about their work and as to their responsibility. To facilitate the work, which is at present restricted to the hospitals and a small area of the city, a telephone was put in to the school building. The corps has done good and efficient service, and has been especially helpful to the sick soldiers suffering with dental ailments in the hospitals. Dr. Potter or Dr. Moriarty have attended personally in cases of importance. The corps has also been very useful during the vacation season in attending to the cases of fractured jaws. The value of this work cannot be over-estimated; but we cannot be expected to bring it, or the rest of the charitable work of the School, to its highest efficiency, while obliged to depend upon the ordinary receipts of the School to meet expenses.

COURSES OF INSTRUCTION, 1897-98.

FIRST YEAR.

Descriptive Anatomy. Four times a week till Christmas. Three times a week in January. — Professor DWIGHT. Twice a week after November. — Assistant Professor DEXTER. Recitations, once a week. — Dr. TENNEY.

Practical Anatomy with exercises in Dissection. Eight hours daily from October 1 till May. Demonstrations. — Drs. BROOKS, TENNEY, LUND, B. B. BLAKE, LOTHEOP, and WARREN.

Systematic and Experimental Physiology. Four times a week during the first half-year. Six times a week during the second half-year. — Professor BOWDITCH and Assistant Professor W. T. PORTER.

Laboratory exercises in Experimental Physiology. Twice a week in sections. — Assistant Professor PORTER and Mr. LOCKE.

General Chemistry, twice a week during the first half-year. Twice a week during the second half-year. — Professor HILLS and Mr. BACON.

Practical exercises in the Laboratory. Twice a week during the first half-year. Twice a week during the second half-year.

Histology and Embryology. Lectures twice a week during the first half-year. — Professor MINOT.

Laboratory exercises twice a week during first and second half-years. — Professor MINOT and Drs. QUINCY, SCHAPER, GREGORY, and AMES.

Bacteriology. Eighteen lectures in the second half-year. — Professor ERNST.

Practical Laboratory work. Eighteen hours for each student during the second half-year. — Professor ERNST.

Operative Dentistry. Preliminary. Six hours a week during first half-year. — Drs. UPHAM and TAYLOR.

SECOND YEAR.

Operative Dentistry. Lectures twice a week. — Professor FILLBROWN and Dr. POTTER.

Practical work in the Operative Infirmary fifteen hours a week throughout the year. — Drs. FARRINGTON, WHITE, and PARKHURST.

Mechanical Dentistry and Orthodontia. Lectures once a week. — Professor SMITH. Practical work in the Laboratory. Eighteen hours a week under Drs. McMEKIN and CHASE.

Dental Pathology. Once a week. Professor BRACKETT.

Oral Anatomy and Physiology. Lectures and Demonstrations. Once a week. — Professor STANTON.

Materia Medica and Therapeutics. Once a week. — Professor BRIGGS.

Crown and Bridge Work and Metallurgy. Lectures and demonstrations. Once a week. — Dr. COOKE.

THIRD YEAR.

Operative Dentistry. Twice a week. — Professor FILLBROWN.

Clinical lectures and lectures on Jurisprudence and the Conduct of Practice.
Once a week for fifteen weeks. — Dr. CLAPP.

Clinical Instruction once a week for six weeks. — Dr. WERNER.

Practical work in the Infirmary fifteen hours a week. — Dr. PAUL, Demonstrator,
and Drs. BLAISDELL, TAFT, EDDY, BRADLEY, BOARDMAN, and WYLLIS,
Instructors.

Clinical demonstration once a week for six weeks. — Dr. WERNER.

Mechanical Dentistry and Orthodontia. Lectures and Orthodontia clinics once a
week. — Professor SMITH.

Clinical Instruction once a week for six weeks. — Dr. STODDARD.

Laboratory exercises eighteen hours a week. — Dr. MORIARTY, Demonstrator,
and Drs. HALEY, ELDERD, BURNHAM, HAYDEN, BIXBY, and CROSS,
Instructors.

Surgery. Once a week, for one month. — Professor WARREN.

Oral Surgery. Lectures by Professor FILLBROWN.

**Operative Surgery at the Massachusetts General Hospital and Boston City
Hospital one day each week.**

Surgical Pathology. Lectures once a week for ten weeks. — Dr. MONKS.

Neurology. Once a week for four weeks. — Dr. WALTON.

Crown and Bridge Work and Metallurgy. Lectures and demonstrations once a
week. — Dr. COOK.

The following table shows the classification of the work done in
the Operative and Mechanical Departments: —

OPERATIVE DEPARTMENT.

Surgical clinics by Professor FILLBROWN.

Necrosis	Number of cases operated upon	9
Abscess	" " " "	13
Anchylosis of Jaw	" " " "	1
Perforation of Palate . .	" " " "	1
Tumors of Tongue . . .	" " " "	1

INFIRMARY.

Number of patients treated for diseases of the teeth . .	7,088
Total number of Operations performed	18,154

MECHANICAL DEPARTMENT.

SERVICE TO PATIENTS.

Sets of artificial teeth	433
Splints for fractured jaws	6
Splints for cleft palate operations	4
Obturbators and appliances for cleft palates	8
Artificial noses	4
Cases of Irregularity treated and corrected	84
Orthodontia appliances	156

Under direction of Drs. COOKE and STODDARD:—

Gold caps	10
Porcelain tips	2
Porcelain crowns	39
Bridges	39

MECHANICAL LABORATORY—PRACTICE WORK.

Specimens crowns and caps	443
“ bridges	114
“ porcelain tips	30
“ “ inlays	30
Sets of artificial teeth	200
Splints for fractured jaws	16
Obturbators for cleft palates	2
Orthodontia appliances	38
Artificial noses	2

EUGENE H. SMITH, *Dean.*

THE VETERINARY SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY :

SIR, — AS Dean of the School of Veterinary Medicine I have the honor of submitting the following report for the year 1897-98; the sixteenth of the School's existence.

The number of students at the beginning of the year was thirty-four; of these ten entered in 1895, eleven in 1896, and thirteen in 1897. Two of the last were put upon the list of Specials, one of them being a graduate of the Massachusetts Agricultural College who had also attended the Veterinary School of McGill University for one year, where he obtained good class standing. During his one year of residence in this School he passed an acceptable examination in every subject but one of the entire course. The other student upon this list is a Canadian Veterinarian who came here to take some of our courses, as a post-graduate student.

Of the eleven members of the first class, one withdrew very early in the first half-year; the remaining ten finished the work of the year. Of the eleven members of the second class all completed the year's work; but one of them was unsuccessful at the final examinations in June. The ten members of the third class all presented themselves for the final examinations; and nine of them were successful.

There were fifteen candidates for the degree; ten of the class of 1898; one each from the classes of 1895, 1896 and 1897, one from the second-year class and one special student. Of these, ten were successful and received their diplomas from the President of the University at Cambridge in June.

The statement of the Treasurer of the University for 1897-98 shows that the School received for term-bills no more than \$4,874 as against \$6,277.39 for the previous year, to which sum at that time, graduation fees amounting to \$660 were added, making a total income of \$6,937.39 from students in 1896-97. This is a falling off of \$2,063.39 for the present year and of \$1,654.10 in comparison with the income of 1895-96.

As explained in this report last year our tuition fee was recently raised from \$100 to \$150 a year, and at the same time the further collection of a fee for graduation was discontinued. The present

year is the first one in which this change has taken full effect, although its influence has been felt since the close of the year 1894-95. The proposed raising of the tuition-fee had been advertised for several years before it went into effect. Whether or not this influenced intending students to take advantage of the smaller fee cannot be shown; but the facts are that at the beginning of the year 1894-95 twenty-nine new students entered the School, and the final effect of this large class upon the total income appeared in the Treasurer's report, as indicated above.

A considerable effort has been made to ascertain, so far as possible, the opinions of graduates and others who would be likely to be informed upon this point; and, without exception, the expressed feeling is that the extra fee, amounting in the three years of required residence to \$120, turns away a considerable number of intending students who would come hither were the fee no more than \$100 a year. It should be further considered that there is no other American Veterinary School, whether connected with a university or not, that charges so much for tuition as the Harvard School; and that to by far the larger number of students attending veterinary schools the difference in the amounts demanded here and elsewhere seems a considerable item. I recommend that the fee be reduced to that demanded previous to 1895-96.

The two Scholarships were awarded for the year; one to a member of the third, the other to a member of the second class. These two Scholarships, each of them paying the entire amount of the tuition fee of the student who holds it for the year, were established by the Faculty, several years since, for the purpose of enabling meritorious students who had met with unexpected financial difficulties, to continue their studies in the School. Their award simply means that the School gives free tuition to these men.

This School is the only one that is maintained in connection with a university, which is without endowments in aid of poor students. The school at Cornell receives \$25,000 a year, which provides free tuition for all students, residents of New York State, that may wish to attend and can pass the required admission examinations.

The school at the University of Pennsylvania received, in 1891, \$25,000 with which twelve free Scholarships, in the gift of the Governor of the State, were established.

Our School has voluntarily gone as far as it can in this direction; graduates of the Massachusetts Agricultural College being allowed to go up for their final examinations after two years of residence, instead of three. Endowment in this direction would not only help

the School, but would also be a great aid to many capable, deserving young men. There is another advantage of this sort, which is enjoyed by the other schools but not by the Harvard School, namely the giving of special prizes in money, books, or instruments, to students who excel in some special direction. A few years since we offered and gave prizes for the best dissections of any kind, that would make desirable additions to our museum, or that could be used to advantage by the instructor in class work. These prizes were well competed for, and gave the good results which were sought and expected; but the offer had to be withdrawn, because we could not afford to maintain the practice further; and no one came forward to help us. One hundred dollars a year would be both helpful to students and of benefit to the School if expended either in this direction or in stimulating the preparation of good pathological specimens, prepared so that they could be added to the museum and availed of for illustrating class work.

It is now twelve years since our first graduates went out into the world to fight the professional battle for themselves; and an attempt has recently been begun to learn what success they have met with. The results of this inquiry will soon be published in detail, and will prove to be of great interest, not only to our own graduates, but to those of other schools, as well as to intending veterinary students and those interested in veterinary education generally. It is remarkable how quickly a great proportion of these men, entirely dependent upon their own exertions for a livelihood, have succeeded in establishing themselves well, on a first trial, — many times in places in or near large Eastern cities that seemed already well supplied with veterinarians, — and have since been able not only to maintain themselves, but also to undertake the maintenance of families. Several of them hold, and have held for a considerable time, positions under the general government, entrance to which service is through competitive examination only. Some of them have been appointed to local positions of honor and trust. All this goes to show that the field for young graduates in this profession, is large and that it becomes profitable sooner than is the average experience of young graduates in the older professions. It is the youngest of the professions, but it is well-suited for ambitious and capable young men of good general and special education, but of limited means and influence. The large endowments given the Veterinary Schools in the University of Pennsylvania and Cornell University show that the value of the new profession to the community at large has obtained some recognition but the Harvard School is still without endowment of any sort.

Month.	Genito-Urinary.			Locomo-tory.			Respira-tory.			Circula-tory.			Nervous.			Digestion.			Special Sense.			Operations.			Skin Diseases.			New Growths.			Accidents, Injuries.			Glan-dera.	Other Animals.	Total Num-ber of Cases.
	Genito-Urinary.			Locomo-tory.			Respira-tory.			Circula-tory.			Nervous.			Digestion.			Special Sense.			Operations.			Skin Diseases.			New Growths.			Accidents, Injuries.					
	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.	D.	C.	H.					
August.	5	23	11	83	7	1	18	7	0	0	1	0	2	3	0	61	24	16	2	28	1	45	22	31	0	40	4	9	4	1	46	10	3	2	Parrot.	469
September.	4	5	19	28	7	0	9	1	2	1	0	4	4	4	2	24	23	14	6	16	1	19	14	23	0	22	3	8	9	0	38	22	3	4	Hen.	338
October.	3	12	23	26	5	1	4	5	3	4	9	0	11	1	0	83	19	3	1	3	1	13	13	30	2	18	5	22	6	2	72	11	5	2	Woodch'ck.	383
November.	1	3	9	31	1	0	0	4	3	8	3	2	10	1	0	27	12	1	1	12	2	29	11	20	0	8	3	4	10	10	54	14	8	1	Parrot.	307
December.	2	1	10	3	5	2	1	2	2	3	1	3	1	0	4	22	12	3	0	14	0	22	18	13	0	6	2	5	5	14	16	15	4	2	Pigeon.	236
January.	0	1	13	20	4	0	5	3	0	2	4	0	7	0	0	16	13	4	3	6	5	15	7	18	0	7	4	10	5	24	12	7	2	2	Rabbit (9).	219
February.	0	2	8	20	5	0	0	4	4	1	3	0	4	2	1	17	10	6	5	31	5	12	9	13	0	11	0	2	11	21	31	7	4	1	Parrot (2)	249
March.	0	3	16	47	2	7	6	4	0	2	3	3	0	9	1	45	18	4	1	41	0	36	11	19	6	14	10	5	8	28	46	30	5	0	0	430
April.	0	2	9	32	4	0	2	10	0	2	5	1	26	20	5	2	15	17	19	8	17	19	8	18	2	20	6	7	2	2	30	28	2	1	White Rat.	343
May.	0	1	12	47	6	8	4	11	0	0	2	2	20	11	4	2	7	8	25	7	3	25	10	25	4	8	1	5	0	0	50	12	8	1	Gazelle.	317
June.	2	2	10	57	4	2	0	1	4	9	12	0	0	3	1	22	22	2	2	6	1	34	14	12	4	4	3	11	5	1	39	18	3	0	Male.	311
July.	2	10	5	26	5	4	7	4	1	11	7	0	0	1	3	26	18	11	0	9	0	19	7	23	2	17	9	3	1	2	38	30	18	0	Male.	324
Totals.	38	74	142	379	52	19	57	56	20	42	53	9	65	77	19	297	193	65	181	36	298	144	245	20	175	50	91	56	105	472	213	60	16	20	3920	

H. = Horse. D. = Dog. C. = Cat.

We need a good building, with ample class-room and laboratory facilities; upon a good accessible street; and means with which to supply these rooms and laboratories with modern accessories. Eighty thousand dollars would buy the land, put up the building and supply the class-rooms and laboratories with the necessary fixtures and materials.

THE FREE CLINIC.

This institution, which is really a free dispensary for animals belonging to poor people, whose livelihood often depends on the services of their animals, and whose attachments to their animals are just as strong as those of well-to-do people, was first established three years ago through the instrumentality of the Committee to Visit the Veterinary School.

During the past year some change in the direct management of this division of the School was made necessary by the resignation of Dr. Cronon; and in December the Corporation placed the work in my hands.

I am gratified to be able to report that, owing to the liberality of the Visiting Committee, who have continued to pay the rent upon the building; and to the thoughtful kindness of those who have subscribed money for its support, the clinic has been conducted at small cost to the department, and has continued to administer relief to a large number of animals, as is shown by the table on the opposite page.

The value of this institution as an adjunct to the teaching resources of the School can scarcely be appreciated by those who do not follow the work done there, — the variety of cases, the opportunity given the students for making careful examinations of them, and of forming their own opinions upon them, of prescribing for them; and of seeing the results of their treatment, as the patients are brought in from time to time. This is the only way in which undergraduate students can be converted to be self-reliant practitioners. The students themselves appreciate this and their interest in the cases is shown by the care with which their work is done and the pride they take in its results.

CHARLES P. LYMAN, *Dean.*

THE VETERINARY HOSPITAL.

TO THE PRESIDENT OF THE UNIVERSITY: —

SIR, — I have the honor to submit the report concerning the Hospital of the School of Veterinary Medicine for the year 1897–98.

Two changes were made in the personnel of the Hospital staff during the year: Dr. Wesley L. LaBaw, who had performed satisfactorily the duties of Assistant Surgeon since February 1892, resigned that position on October 1, and Dr. Albert J. Sheldon was appointed in his place. This appointment has proved an advantageous one, although the duties performed by Dr. Sheldon are not entirely the same as those of Dr. LaBaw.

At the opening of the year the competition for the positions of House Surgeon was very sharp. Of the senior class there were appointed Messrs. Dennen, Blakely and Smith, each of whom faithfully and diligently performed their duties; to their efforts much of the success of the past year is due.

With the opening of the Hospital in 1888 there was established a "Subscription Plan" similar to that which has been for many years successfully pursued at the Royal Veterinary College in London. Under this plan annual subscribers received services at the Hospital at certain discounts from the usual rates. This arrangement was in operation here until August 1, 1894, when, for various reasons, it was abandoned, as stated in this report for 1894–95. The beneficial results that it was expected by some would follow the discontinuance of this plan not being apparent, it was determined, on January 1, 1898, that the department should again solicit annual subscriptions to the Hospital.

The experience of the year has again shown that the space allotted to patients in the Hospital is at times quite inadequate to the demands made upon it. This was especially apparent during some of the winter months, when provisional accommodations for horses were made repeatedly to such an extent as to occupy the whole of the operating room for days together.

It has been possible to enlarge the space for dogs by cutting down still further the hay and straw room. This change has resulted in greatly improving the dog quarters, and in providing for the proper

care of a larger number of dogs than heretofore. Storage for the main stock of hay and straw has been obtained in a building at a distance from Village Street.

The volume of business shows a marked increase over that of the previous year, as may be seen by the following table:—

Month.	Genito-Urinary.	Locomotor.	Respiratory.	Circulatory.	Nervous.	Digestive.	Special Senses.	Operations.	Skin Diseases.	New Growth.	Total.
November . . .	2	24	6	.	6	16	6	21	5	3	89
December . . .	2	29	15	3	6	16	5	38	7	6	126
January . . .	..	24	15	..	..	14	..	29	8	3	93
February . . .	1	33	10	..	7	5	4	19	4	6	89
March . . .	1	26	4	1	7	22	3	27	11	10	111
April . . .	1	35	11	..	2	22	3	25	7	5	113
May . . .	1	30	11	..	3	16	9	33	6	9	118
June . . .	3	36	8	..	3	14	3	27	9	4	107
July . . .	..	31	4	..	3	8	2	7	9	..	69
August . . .	..	16	3	..	5	18	5	22	20	3	92
September . .	1	20	2	..	3	7	1	13	7	..	56
October . . .	1	24	5	..	1	12	5	35	11	7	101
Totals . . .	18	328	96	3	51	170	45	298	104	56	1164

This increase has enabled us to furnish a larger number and greater variety of cases to the clinical instructors in the school, the materia being especially ample in Influenza, Pneumonia, Pleurisy and in diseases and injuries of the feet.

Special instruction in the administration of medicines, dressing, and bandaging has been given by one or more members of the Hospital staff every morning from eight until ten o'clock to members of the third class. The usual clinical lectures have been given at ten o'clock every morning, to members of the second and third classes, by Drs. Osgood, Howard, Leonard, Sheldon and Foss.

In addition to the animals received into the Hospital there are numbers of others, which, while they live at home, are brought to the Hospital from day to day for treatment and observation. This process furnishes the "out clinic," and is a further valuable adjunct to the teaching material. The cases exhibited under this head amounted to 762, and embraced the usual variety of illnesses, accidents, and lamenesses, all of which received the necessary treatment, including 298 surgical operations.

Besides these opportunities, instructive out-visits are made, as occasion offers, to which members of the third class are taken in rotation.

In October an operating class was organized under the direction of the Surgeon in charge, for the benefit of third-year students. These exercises were held once a week, on Saturdays, from ten until one o'clock; they were fully attended and highly appreciated, and proved to be of great value to every member of the class.

The financial results of the Hospital show a marked improvement. The total receipts from Hospital earnings were \$16,524.10 as against \$14,643.34 received in the year before, a gain of \$1,880.76. The changes made in the Hospital staff, as herein described, resulted in a reduction of \$1,400 in the salary list, and there was also a reduction of \$1,717.15 in the wages account. This last economy was made possible by the discontinuance of the shoeing forge at the Free Clinic.

While the receipts from the School were \$3,017.06 less than for last year, the increased earnings of the Hospital and the reductions made in the salaries and wages account, together with other minor savings, resulted in a deficit of no more than \$1,628.91 for the year 1897-98, as against one of \$5,487.34 for the previous year; an absolute gain of \$3,859.03 for the year. In other words, had the School brought, as it did the year before, \$7,918.16 to the general account of the department, there would have been shown an absolute surplus of \$1,388.75 as a result of the work for the year.

FREDERICK H. OSGOOD,
Surgeon in Charge.

THE BUSSEY INSTITUTION.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — I respectfully submit the following report on the School of Agriculture and Horticulture for the year 1897–98:—

Instruction was given in Agriculture by Mr. Hersey, in Horticulture and the rudiments of Landscape Gardening by Mr. Watson, in Agricultural Natural History by Mr. Morse, in Agricultural Chemistry and in Qualitative Chemical Analysis by Professor Storer. The course in Natural History in its Applications to Agriculture and Horticulture, given this year for the first time, has proved to be highly acceptable to the students and of great advantage both to the students and the School.

A somewhat smaller number of students than usual attended the courses of 1897–98, viz. eleven, instead of the numbers fifteen to seventeen which, with remarkable constancy, had been enrolled each year during the five previous years. Happily, this deficit has been much more than made good for the coming year by an unusually large registration.

One part or number of the Bussey Bulletin (VII of Vol. II) was published in the summer vacation.

On the farm a large and commodious barn, for the storage of hay and the keeping of horses, has been constructed to replace those burned in the summer of 1897 by an incendiary fire.

F. H. STORER, *Dean.*

THE LIBRARY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I have the honor to submit the following report on the Library of the University for the year 1897-98:—

The death of Justin Winsor, Librarian, on October 22, 1897, deprived the Library of a director, who during the twenty years of his administration (since September 24, 1877) had pursued vigorously and consistently a sagacious policy which he had set forth clearly at the beginning, a policy, the fundamental purpose of which was to secure for all members of the University the most complete and convenient access to the books of the Library consistent with orderly methods of caring for them. The whole administration of the Library as shown in the shelf classification, the catalogue and its printed cards, the method of charging books, the admission of advanced students to the book-stack, the collections of reference books and periodicals, the reserved books in the Reading-room, and in other details was directed to secure this end. It is interesting to read Mr. Winsor's first two reports and to notice how completely the measures there proposed have since been carried out.

In the mean time, however, other new problems have come to the front, and some of the most interesting are those connected with the recent development of laboratory and class-room libraries, their proper supervision, the relation of these and of the larger departmental or professional libraries to the College Library, and the final influence of both upon the question whether we are to continue to have one great library embracing all subjects, or are finally to split up our great library into a number of smaller collections devoted each to its own field, and made, in that field, as complete as possible. In some respects the answer to these questions is plain. It is clear, for example, that the College Library should never attempt to have an extensive legal or medical collection. The 45,000 volumes of the Law School Library are more conveniently located in the Law School building than they could possibly be anywhere else, and duplication to any large extent is unnecessary in the College Library. Accordingly, when the Law School began this last year to complete its collection of the annual statute laws of all the States of the Union, the College Library properly turned over to it all its sets

of sessional laws, partial or complete (except the statutes of Massachusetts, compiled laws, and pre-revolutionary matter), and will refrain, in future, from buying or keeping any volumes of this kind, leaving the field to be occupied by the Law School. In the same way, a large medical collection is of real value only to professional students, but the Medical School is in Boston and is well served by the Boston Public Library and other Boston libraries. The College Library therefore limits its purchases in medicine to a few works of reference and to such books as are needed by students of psychology, hygiene or natural science. Several other subjects, however, such as theology, astronomy, botany, zoölogy, geology, and anthropology, in which the College Library has extensive collections are also strongly represented by a separate departmental library, viz., at the Divinity School, the Astronomical Observatory, the Herbarium, the Museum of Comparative Zoölogy, and the Peabody Museum, and the student in any of these fields has to go to at least two places to get a complete view of the material at his command. Undoubtedly it would be an advantage if a complete collection of the material in each great subject could be found in one place, yet each of the departments named has its established library and receives gifts from its friends or in exchange for its own publications. Moreover each needs a more or less extensive working collection, so that the question of transferring these libraries bodily to a central library will never be seriously considered. On the other hand, the question arises, should the books on these subjects in the College Library be transferred to the department libraries, leaving in the College Library only a few popular general works and whatever may be already duplicated in the special library? Some steps in this direction have been already taken; many sets of astronomical and meteorological observations have been transferred to the Astronomical Observatory; many floras were sent several years ago to the Herbarium; in June last the Library Council consented to transfer to the Divinity School Library books on New Testament criticism, philology, and exegesis so as to make that library complete in this specialty; and it considered seriously the suggestion that a complete geological collection should be formed either at the Museum or at the College Library, by putting together the books (not duplicates) in the College Library, the Museum, and the separate Whitney Collection. Similar suggestions will doubtless be made in the future, and the policy of the Library in this respect should be made clear.

The plan of separate special libraries was adopted from the beginning by Johns Hopkins University and the University of

Chicago. The arguments in its favor are: (1) more convenient use of the books by the workers in the department concerned, because the collections, being comparatively small, can be more easily handled, and can generally be installed in such a way that more table space in close proximity is available; (2) in the case of scientific subjects, the possibility of having the books in or near the laboratory, which is the natural headquarters for scientific work. The arguments against such a policy are: (1) increased difficulty of access for persons not immediately connected with the department, the result either of want of familiarity with the arrangement and the rules of the special library, or of its being open less constantly or lending its books less freely than the central library; (2) less careful supervision of the library, or else increased expense for its administration, and in most cases less security from fire; (3) the loss of the reinforcement which each department of a general library receives from all related departments, unless the special library at considerable extra expense goes outside its own special field and acquires works which also belong in other departments and must be duplicated there (the publications of learned societies and many other important periodicals of too general a nature to be included in a department library have, of course, to be left in the central library); (4) a tendency to narrowness which the student who works in a well-equipped comprehensive library is likely to escape; (5) the growth of the special collection beyond a convenient size, while its earlier treatises and old editions become superseded by new ones, the natural result of which is that the central library is asked to take back the less useful books with which the special library no longer wants to be cumbered. These various considerations have more or less weight in different cases according to the subject, according to the situation and size of the library, and according to the habits and traditions which have prevailed in the College; but they make it fairly clear, as it seems to me, that in general the ideal arrangement is to have a strong and comprehensive central library, with commodious and conveniently situated study-rooms for professors and advanced students, supplemented by well-selected working libraries in the departments.

Advantageous modifications of this ideal are not far to seek. The Law School Library is a notable exception; it naturally gathers the comprehensive collection in that department, and the College Library keeps selected books only. Floras are properly transferred to the Herbarium, because they are the working tools of the systematic botanist just as truly as reagents are of the chemist; but to cut off

the rest of botany from the general library and install it at the Herbarium would deprive the botanist of the use of the related collections of biology, palaeontology, agriculture, organic chemistry, etc., in the College Library. The collections of astronomical observations naturally go to the Astronomical Observatory (though they lose, thereby, the protection of a fire-proof building), because a large corps of computers is working there on precisely similar matter; but if the treatises on astronomy were sent thither also, the student of astronomy, who followed them, would leave behind him in the College Library the transactions of many learned societies, and collections on navigation, mathematics, geology, physics and spectrum analysis, which would have material bearing directly on his work, while all students in these other lines who came to the central library would find their material incomplete because astronomy had been taken away.

New Testament criticism seemed a fairly restricted and definite subject, but when we undertook to select from the College Library the books to be sent to the Divinity School, it appeared how closely bound up it was with theology, antiquities, philology, and the early history of the Christian church. The same is true of any subject; though it is, of course, more evident in the fields of literature, history, philosophy, and economics than it is in scientific fields; and it is in scientific subjects, and in consequence of the needs of laboratory workers, that other exceptions, if any, will have to be made. In the case of the department libraries, therefore, it seems to be impracticable to make complete collections in the subject concerned in either one place or the other; but the disadvantages of separation can be diminished by keeping a record in the central library of what the department library has, by transferring to the department everything in certain restricted technical lines, by encouraging it to transfer to the central library whatever it may receive by gift or exchange that is of a more general nature than the specialty that it naturally cultivates, and by providing in the general library as ample conveniences as possible for study, so that the books can be readily used in connection with those in other related fields. If, in addition to this, the books in the department library are classified on the shelves in the same way in which the books in the central library are classified, their use will be still further facilitated.

There remains to be considered the relation of the various laboratory and class-room libraries to the main library. The seven laboratory libraries (see p. 211) are evidence of the fact that the laboratory worker feels the necessity of having his principal working books

close at hand, but their growth has been further fostered with us, because the scientific books in the College Library have not been classified in such a way as to make their use easy; so that the instructors, not having been served as they should have been here, have felt the greater need of books in their own laboratories. Such collections should, in my opinion, be restricted in size, the less used and the out-of-date books being weeded out from time to time and sent to the College Library, while other books, if of a distinctly technical character and not likely to be wanted by other students, can be taken from the College Library and deposited in the laboratory for as long a time as they are needed. Books much used, however, unless simply laboratory manuals, should undoubtedly be provided in duplicate and be accessible in both collections.

The formation and growth of the class-room libraries (now sixteen in number) has also been encouraged by the inability of the College Library to furnish needed books in sufficient numbers, and room enough in which to use them. In large part they duplicate the "reserved book" collections in Gore Hall, or make unnecessary the reservation of books there, and thus form a very valuable addition to our resources. They also relieve the pressure on the seating capacity of Gore Hall which, though much enlarged by the changes made three years ago, would soon be inadequate were it not for the large numbers that use the class-room libraries by preference. The class-room libraries thus perform a valuable service and one that we shall not wish to dispense with; for it has never been the policy of the Library to provide any considerable number of duplicates from its book-funds, and any further enlargement of the central reading-room would probably be undesirable, the room having apparently reached, or nearly reached, the limit beyond which the unavoidable constant noise from a large number of persons becomes troublesome.

We shall, therefore, I hope, always continue to have a number of these subsidiary libraries; but the need of better accommodation for them is pressing. Scattered as they are in many separate rooms (see p. 211), it is impossible to exercise proper supervision over them, though a member of the Library staff, Mr. W. D. Goddard, visits some of them daily, and others two or three times a week, for the purpose of keeping them in order, and of reporting missing books to the officer of instruction immediately responsible. Four of them have been brought together into the reading-room in Harvard Hall, and are thus under good care, and are the most used, an attendant being present constantly during the hours that the room is open. Some similar provision ought to be made for the Child Memorial

Library of English, and some, or all of the other libraries of modern literature might for a time be shelved in the same room with it. The Child Library already has a valuable collection of books, and it will increase rapidly. The Romance library will also deserve more careful supervision, when it obtains the collection of Romance books from Mr. James Russell Lowell's private library, many of which are enriched by autographs or notes.

It must be admitted that a small special collection installed in a room by itself, and accessible only to the students of a single department, who hold keys to the room, gives to those who use it something of the pleasure of a private library; and it is creditable that the number of books lost during the last year was so small (about fifteen, not including those that disappeared for a time and afterward reappeared). But it is none the less true that the present arrangement should only be regarded as a temporary one, and that better accommodations ought already to be under consideration.

In the plans for enlargement which were approved in 1898, the new octagonal reading-room seating 350 was surrounded by smaller rooms opening out of it, which were designed for these class-room libraries, for study-rooms for the professors, and for small courses that require the use of many books. But I am inclined to think that on the whole a more satisfactory place for these rooms would be in a new section of the present building to be added, either at the east end of the east stack, or at the south end of the west stack. In either of these positions they would be somewhat more conveniently placed with respect to the books than if disposed about a central reading-room. An additional reason in favor of this plan is that it allows these rooms to be built at once and independently of the new large reading-room which will be necessary a few years hence. For the immediate present, and until more space for book storage is needed (perhaps six or seven years), the Gore Hall reading-room will serve; but of smaller rooms for study and research and for the departmental collections which we have called class-room libraries the need is already urgent. We have perhaps the richest collection of books in this country, we have a great part of them admirably classified, and before long the same can be said of the whole; but, except for a number of tables in the east stack so small that not more than two or three books can be used on them at once, and so placed that the library attendants are continually brushing by them, and a few large tables insufficiently lighted in the west stack, we have no place for private study, no place at all where a scholar can have a number of books brought together for his own use for a

few days or weeks, or where he can keep his own papers and materials while working. An enlargement of the building would also, it is to be hoped, provide some extra room for the staff which is in certain respects hard pressed; and I should be glad if a small room could be contrived for a stenographer and type-writer whose services might be available a part of each day to professors and others who might have occasion for them. All of these, but especially the provision of departmental reading-rooms and study-rooms, are urgent needs, and I hope some way of meeting them may speedily be found.

In the course of the summer a rotary ventilating fan was installed in the attic space above the former Art Room (now the American history reading-room). This is intended to pump a strong current of warmed air into the top of the reading-room and of the delivery-room, and in summer, by a reversal of the fan, to draw out from the top of the reading-room the heated air, for which there has heretofore been no means of exit, and which has made the room almost unavailable in hot weather. The apparatus has only just been put into operation; but it promises to be successful in greatly improving the air in the two rooms which it supplies, and the fan proves to be practically noiseless in its action.

But one Bibliographical Contribution, No. 53 of the series, has been issued during the past year, "A List of Portraits in the various buildings of Harvard University," prepared under Mr. Winsor's direction by William Garrott Brown, the Deputy Keeper of the University Records.

The accessions to the University Library for the year, and the present extent of the various departments, are shown in the table on the next page.

The accessions to the Gore Hall collection include 1,160 volumes of bound serials (received in parts), 976 volumes made by binding pamphlets singly, and 16 volumes made up of many pamphlets bound together.

To this total of 506,896 volumes should be added the 18,327 volumes of the laboratory and class-room libraries (see below), giving a grand total of 524,723 volumes for the University Library. This number however is to be regarded as an approximation only, being the result of an estimate made in 1878 on the basis of an actual count in 1873, increased from year to year by the number of volumes added. But while the count of volumes received is doubtless accurate, less careful attention has been given to the number of those sold, worn out, exchanged, or transferred to other departments, so that, although the estimate made in 1878 was thought to be under the actual size of the library, the present figures may be somewhat

Accessions.	Volumes added.	Present extent in	
		Volumes.	Pamphlets.
Gore Hall (College Library)	11,219	865,798	364,377
Law School	8,468	44,840	5,241
Lawrence Scientific School	138	5,100	. .
Divinity School	1,214	28,710	16,254
Medical School	85	2,204	. .
Museum of Zoölogy	641	81,989	1,600
Astronomical Observatory	400	9,088	12,787
Botanic Garden (Herbarium)	71	7,847	4,984
Bussey Institution	40	3,690	200
Peabody Museum	110	1,948	2,588
Arnold Arboretum	868	6,110	6,000
Dental School	40	160	. .
Total	17,739		
Deduct, transfers from Gore Hall to Divinity School and Law School	1,033		
Total	16,706	506,396	418,926

in excess. An actual count cannot conveniently be made until the rearrangement of the Library is completed, when shelf-lists giving an accurate view of the extent of each department of the Library will have been made.

The additions to the College Library include 177 volumes in which are preserved the letters received by Charles Sumner from 1830 to 1874; also newspaper clippings and his commonplace-book. These were given to the Library by the sons of Mr. Edward L. Pierce, Sumner's literary executor.

Mr. Charles C. Beaman of New York, a member of the Board of Overseers, has given a typewritten copy of an "Index to some of the periodical literature relating to Harvard University contained in the library of the University Club of the City of New York." This index was prepared by Mr. T. Frank Brownell, the secretary of the Class of 1865, and though it is limited in its field to the periodicals owned by the University Club, of which some of the sets indexed are unfortunately incomplete, it nevertheless provides a key to a surprising amount and variety of information. The entries, about 21,000 in number, are divided under more than a hundred well chosen heads, and are arranged in the main chronologically under each head. Mr. Brownell deserves the thanks not only of the New York University Club, but of all Harvard graduates for this labor of love. It

would be desirable to make provision for the completion of the Index, and for its extension from 1893 to date. The less complete record which the Library printed for some years was not continued after 1892.

Another interesting gift is that of an Italian manuscript, dated 1353, of the "Liber de casu Trojæ" of Guido delle Colonne, from Miss Kate O. Peterson of Brooklyn, N. Y., who received the degree of A.M. from Radcliffe College in 1895, and constantly used this Library during her residence in Cambridge. Mr. Theodore W. Koch, of the Class of 1893, now engaged in cataloguing the Dante collection of Cornell University, has presented to our Dante collection many of the Cornell duplicates, while the Dante Society has put another hundred dollars in our hands from which to still further increase our Dante collection. Dr. A. C. Coolidge has continued to make large additions to our Slavic collection at his own expense.

It is impossible to name all the individuals, societies, and government departments which have favored the Library, but I must not omit to mention Senators Hoar and Lodge of Massachusetts, Sir John Bourinot, K.C.M.G., the Clerk of the Canadian House of Commons, Hon. Samuel A. Green of the Massachusetts Historical Society, and Rev. Edward Abbott of Cambridge, for their constant gifts of books, documents, and pamphlets.

The Herbarium Library has received from Mrs. Asa Gray a large collection of autographs of botanists mounted in volumes. The Library of the Museum of Comparative Zoölogy received 100 volumes from the library of the late Theodore Lyman.

The total gifts to the College Library during the year 1897-98 and five previous years have been as follows:—

GIFTS TO COLLEGE LIBRARY.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
Volumes	4,118	6,026	4,351	8,908	5,048	2,646
Pamphlets	13,770	16,598	7,522	8,908	8,427	11,365
Totals	17,888	22,624	11,873	12,811	13,475	14,011

The accessions by gift and purchase to the University Library as a whole (excluding the laboratory and class-room libraries) have been as follows during the last eighteen years:—

Volumes.	Volumes.	Volumes.
1880-81 . . . 9,804	1886-87 . . . 11,924	1892-93 . . . 22,370
1881-82 . . . 9,129	1887-88 . . . 16,468	1893-94 . . . 15,788
1882-83 . . . 9,818	1888-89 . . . 12,253	1894-95 . . . 13,325
1883-84 . . . 12,360	1889-90 . . . 16,051	1895-96 . . . 17,317
1884-85 . . . 14,558	1890-91 . . . 19,276	1896-97 . . . 15,474
1885-86 . . . 9,191	1891-92 . . . 18,785	1897-98 . . . 16,706

The present extent of the laboratory and class-room libraries is as follows :—

LABORATORY AND CLASS-ROOM LIBRARIES.	Perma- nent.	On Deposit.	Totals.
1. Chemical Lab. <i>Boylston Hall</i>	568	979	1,547
2. Physical Lab. <i>Jefferson Phys. Lab.</i>	14	360	374
3. Botanical Lab. <i>University Museum</i>	505	124	629
4. Geological Lab. <i>Do.</i>	252	. .	252
5. Mineralogical Lab. <i>Do.</i>	510	221	731
6. Phys. Geography Lab. <i>Do.</i>	329	156	485
7. Zoological Lab. <i>Do.</i>	259	. .	259
8. Classics. <i>Harvard Hall 3</i>	8,247	143	8,390
9. History. <i>Harvard Hall R. R.</i>	1,378	34	1,412
10. United States History. <i>Harvard Hall R. R.</i>	804	8	812
11. Political Economy. <i>Do.</i>	912	1	913
12. Social Questions. <i>Do.</i>	822	. .	822
13. Child Memorial. <i>Sever 2 and 4</i>	2,277	41	2,318
14. Romance Languages. <i>Do.</i>	501	2	503
15. German. <i>Do.</i>	463	. .	463
16. French. <i>Sever 21</i>	2,235	. .	2,235
17. Sanskrit. <i>Sever 15</i>	477	. .	477
18. Semitic. <i>Sever 7</i>	828	. .	828
19. Mathematics. <i>Sever 22</i>	320	72	392
20. Music. <i>Dane Hall</i>	155	. .	155
21. Philosophy (Psychol. Lab.). <i>Dane Hall</i>	394	87	481
22. Fine Arts (incl. Gray and Randall Coll.). <i>Fogg Museum</i>	776	. .	776
23. Architecture. <i>Archit. Department Bldg.</i>	207	. .	207
24. Preachers' Library. <i>Wadsworth House</i>	94	. .	94
Totals	18,327	2,178	20,505

The Chemical Laboratory has on deposit a large number of periodicals and an extensive series of chemical dissertations received from the German universities. The Physical Laboratory has on deposit the complete set of Poggendorf's *Annalen*. The gift of a duplicate set would be very welcome; so that this set might come back to the College Library where it is not infrequently wanted by chemical students and others.

The Classical Library occupies two rooms (one a seminary room) in Harvard Hall. Admission is by key only. In the course of the year the Classical Department bought all the books relating to Homer and Hesiod from the late Professor F. D. Allen's library, and have made of them a memorial collection in the seminary room.

The four libraries of History, United States History, Political Economy and Social Questions (in all nearly 4,000 volumes), together occupy a large room in Harvard Hall seating seventy persons. This room is open from 8.30 A.M. to 5 P.M. and is in charge of an attendant. At the close of the day books may be taken out for overnight use.

The Child Memorial Library is the only one of the class-room libraries that has a permanent fund of its own. The others have been built up by gifts or subscriptions, or by appropriations from the Corporation or from the departments interested.

The libraries in Sever and Dane Hall being scattered in so many rooms are necessarily under no constant supervision and the rules in regard to their use vary in some respects, but they are accessible only to persons having keys to the rooms.

The Fine Arts collection has recently been enriched by the books belonging to the Gray collection (402 volumes) and the Randall collection (229 volumes).

USE OF BOOKS IN THE COLLEGE LIBRARY.

The following table shows the use of books at Gore Hall in 1897-98 as compared with previous years:—

USE OF BOOKS.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
1. Books lent (excluding overnight use)	50,965	55,898	57,241	60,846	59,781	59,611	61,272
2. Used in the building (Recorded use only.)	19,648	23,671	22,442	23,500	22,280	22,965	27,017
3. Overnight use of reserved books . . .	20,469	24,482	23,877	20,985	8,594		
Totals	91,082	104,051	103,560	104,831	90,655	82,576	88,289
4. Overnight use of Harvard Hall Reading-room						9,288	11,938

The decline in the total recorded use from 1894-95 to 1896-97 was caused by the discontinuance of lending reserved books for overnight use, consequent on the opening of the reading-room in the evening. The ordinary borrowing from Gore Hall and the

recorded use of books in the building, it will be noticed, was greater during the past year than ever before.

Of the constant use of the reserved books in the reading-room, and of the collections of reference books, periodicals and United States documents freely accessible to all, no record is possible. The extent of these open collections and their growth is shown in the following table:—

OPEN COLLECTIONS.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
Bound Periodicals	3,340	3,444	3,525	3,610	3,813
Reference Books	2,704	2,696	3,896	3,823	3,853
Reserved Books	7,427	6,847	7,677	8,000	8,117
U. S. Documents	3,088	3,240	3,370	3,465	3,592
Total	16,559	16,227	18,468	18,996	19,375

To these should be added the books in the Harvard Hall reading-room (3,959) and those in the other class-room and laboratory libraries (16,546), making altogether, at present, about 40,000 volumes which are directly accessible in an informal manner to the members of the University.

In addition to this, cards of admission to different departments of the Library are given, on recommendation of an instructor, to all advanced students who need to go directly to the shelves for purposes of investigation in connection with their work. Such students have the same facilities for the examination and study of all the resources of the Library, in their chosen departments, that the officers of instruction enjoy. The use of these cards of admission to the book-stack is shown in the following table:—

ADMISSION TO THE BOOK-STACK.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
History	36	41	59	63	63	66	54	51
Science	8	9	28	27	9	4	11	33
Art (including Music)	15	13	4	8	5	11	18	11
Literature	38	45	62	63	68	63	64	90
Classics	18	22	26	45	44	41	41	52
Philosophy	12	16	5	17	12	6	4	11
Theology	8	9	12	3	3	1	1	1
Political Economy	9	14	9	15	15	12	4	9
Education . . . . .	..	..	..	3	..	1	5	3
Geography . . . . .	..	..	..	..	..	..	8	14
Total students	144	169	205	249	209	205	210	299
Times of use	2,512	3,629	4,560	5,974	4,352	4,601	4,381	5,750

Only once before (in 1886-87) has an almost equally large number been given. For several years after 1886-87 the privilege was somewhat restricted, as it was thought to have been unnecessarily enlarged. But as new departments of the Library are brought into order, an increased demand for opportunities of examining the books at the shelves is natural and is justified. That the progress of the reclassification of the Library is to a large extent the cause of this increased demand is shown by the fact that the largest recent increase is in departments of study in which the most progress has recently been made, — science, art, literature, and philosophy.

The number of students who take books from the Library, and their relation to the whole number connected with the Cambridge departments of the University, is shown for the last four years and at previous ten year intervals in the following table: —

STUDENTS OF	1874-75.		1884-85.		1894-95.		1904-05.		1906-07.		1897-98.	
	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.
Divinity . . .	20	16	26	26	50	40	11	87	37	36	40	36
Law	139	68	153	111	404	176	406	186	475	217	548	241
Scientific . .	29	21	28	21	308	144	340	128	368	162	410	111
Resident Grad.	55	18	70	52	242	204	285	213	279	224	287	241
Senior Class .	152	109	191	170	327	318	366	334	328	290	342	322
Junior Class .	159	96	234	216	348	335	338	325	377	311	387	333
Sophom. Class	208	124	258	110	425	323	445	303	473	268	450	305
Freshm. Class	197	108	255	205	399	236	462	280	416	263	471	264
Sp. Students .	. .	. .	. .	. .	168	127	160	122	160	120	111	117
Total . . .	959	555	1213	1082	2671	1903	2902	1922	2913	1891	3104	2055

The proportion of the undergraduates who borrowed from the Library expressed in percentage was shown in the last report by a table covering fourteen years. The figures showed a rather remarkable fluctuation, ranging from 88 to 99 per cent. for the Seniors, 82 to 99 per cent. for the Juniors, 56 to 94 per cent. for the Sophomores, 59 to 80 per cent. for the Freshmen. The highest general average was in 1887-88, while the lowest percent. for each of the three upper classes was in the year 1896-97. In 1897-98 the general average rose again, but the Freshman record sank to its lowest point in fifteen years, 56 per cent. As has been remarked, however, in these reports before, the decline which began about

1888 is simply a decline in the *recorded* use of the Library; it has been contemporary with the development of the class-room libraries, and the marked decrease of 1896-97 from the previous year was evidently connected with the opening of the reading-room in the evening, which stopped the issue of reserved books for overnight use. That the actual use of books in the reading-room and in the class-room libraries has largely increased during these years is evident from observation; but it is a little remarkable that this use should have satisfied the desire of so large a proportion (nearly 26 per cent.) of the undergraduates, so that 468 of the 1,819 students enrolled in the College did not find occasion to borrow any books from the Library. Of these 468, 20 were Seniors, 54 were Juniors, 145 were Sophomores, 207 were Freshmen, and 42 were Special Students.

That but a small proportion of the Law students should be registered here is not remarkable, as their professional needs are fully supplied by their own Law Library, and the College Library does not profess to be well equipped with the literature of relaxation. The students of the Scientific School also find most of the books which they require for study in the reading-room of the Scientific School, in the laboratory libraries, and among the reserved books in Gore Hall, and their attention is naturally directed more to laboratory work than to literary investigation. Nevertheless, the familiarity with a large library well equipped in all departments of human learning is one of the broadening and inspiring influences open to all members of the University resident in Cambridge, and it would be a satisfaction to see professional students as well as others avail themselves of it in the highest degree.

The students of Radcliffe College are given the use of the Library so far as this can be done without prejudice to the interest of the students of Harvard. To give them equal privileges would be manifestly impracticable; but I hope it may sometime be possible to give them somewhat more ample accommodation than at present. The table below shows that the number of books lent to Radcliffe has declined since the new reading-room was opened and the overnight lending of reserved books ceased.

BOOKS LENT TO RADCLIFFE.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
Borrowers	83	111	182	108	156	155	167	146
Books borrowed . .	930	886	1,057	1,162	1,672	1,502	1,320	1,191

Books wanted by Radcliffe students are sent for by a messenger coming daily from Radcliffe College, and are charged to the Radcliffe Library, not to the individuals asking for them. Radcliffe's own library now numbers 12,500 volumes, and the Harvard Library has the pleasure, from time to time, of adding to it from its own duplicates.

During the past year the temporary use of the Library has been granted to 147 different persons who have come to Cambridge for the express purpose of study. Such scholars are always welcome; for among them comes, from time to time, the special student who finds material, elsewhere inaccessible, in the books which a great library is bound to gather and to preserve for just such individual investigators, though they may be practically useless to every one else.

So far as possible, also, we have complied with requests coming from persons or institutions at a distance, and, in the course of the year, have sent to 92 such applicants (including twenty-nine colleges) 480 volumes. The policy of the Harvard Library has always been liberal in this respect, and has created throughout the country a feeling of gratitude and loyalty to the Library, which I have had occasion to remark and to rejoice in more than once. So far as I am aware this practice has been maintained thus far without the occurrence of any accident, the Library having never suffered loss from it, and seldom any inconvenience.

The Sunday use of the Reading-room shows a slight decline from last year, though it is far in excess of the figures of any previous year:—

SUNDAY USE.	1890-91.	1891-92.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
Sundays open . . .	37	37	37	37	36	24	35	35
Users	3,104	3,284	3,716	3,658	3,634	2,359	5,010	4,635
Average	83	88	100	99	100	98	143	132
Highest No.	132	119	135	136	131	140	227	297

SHELF DEPARTMENT.

The work of re-classification has been steadily continued throughout the year. 32,478 volumes have been permanently placed in the stack (7,444 added to classes previously arranged, and 25,034 newly classified), making 217,100 so placed out of the volumes constituting the Gore Hall collection.

The newly classified books are as follows : —

Chemistry	1,500 vols.	Philosophy	7,410 vols.
Engineering	900 "	Sociology	1,993 "
Mathematics	3,010 "	Italian	5,597 "
Astronomy	1,070 "	Spanish	2,568 "
Geology	991 "		<hr/>
			25,084 "

Beside these, there are nearly arranged

General Periodicals	6,000 vols.	Portuguese	325 vols.
Scandinavian	2,000 "	Minor Romance	250 "
Dutch and Flemish	650 "		<hr/>
			9,225 "

Mr. N. D. C. Hodges, who is responsible for the scientific groups, says : —

The classification of the scientific books has special interest, as it is one of the first attempts at a satisfactory arrangement with so many books to work over, some previous efforts having been schemes for the classification of knowledge rather than of books as they exist. In each department only the most general plan was laid down before the books were touched; for the details, the books were looked to for an assertion of their proper places. The greatest difficulties were met in mathematics, the new mathematics, if it may be so called, having produced an interlacing of the older branches, of which cognizance is not readily taken in a linear placing of books on the shelves of a library. In physics, chemistry, mathematics, and astronomy, there were placed near the beginning the earlier books, those which appeared before the birth of modern science in the works of Newton, Lavoisier, Descartes, and the fathers of astronomy, and which have mainly an historic interest, — not to refer to their occasional erratic character. The books in those sciences as we now know them, after division into the necessary classes, were placed, in the main, according to date of publication; the newer books in each group being thus separated from the older and made more available for the reader visiting the shelves. Considering that there are librarians who would relegate to the cellar scientific books more than ten years old, we may expect that a date arrangement for science will become more and more popular. So far as the classification of the books in natural history has progressed, the historical development of the literature has had its influence, though systematic monographs have required different treatment;

then, again, there are fewer epoch-making books to rank with those in the physical sciences.

Mr. Carney, besides having the general oversight of the current entry of new books on the shelf lists, has been specially occupied with the re-classification of the philosophy and sociology, in which he has been guided by the constant advice and interest of the members of the departments. To Dr. Benjamin Rand we are under special obligations in this respect. In regard to certain details of the classification Mr. Carney reports :—

The literature of Greek and Roman Philosophy was not included in the Philosophical collection, these books having already been placed in the Classical collection, where it was decided to leave them. The scheme of classification is so planned, however, that duplicates not needed by the Classical Department can be placed here. From the Oriental Philosophy all texts were excluded, only histories being placed here. The books on Aesthetics were also left out, as they had already been placed in the Fine Arts collection; but Natural Religion was included under Philosophy, instead of being left for Religion. To illustrate the medical side of Psychology, the Medical collection of the Library was freely drawn upon, the use of medical works in this Library by professional students being small. The Medical School being in Boston, the medical students use the Boston libraries for the books they need.

The Sociology so far arranged includes only general works and those topics known collectively as the social questions; viz. Socialism, Communism, Laboring Classes, Charity, Pauperism, Crime, Temperance, Woman, Marriage. The related departments (Economics, Political Science, Education, etc.) will immediately follow under a separate notation. A rough scheme for Economics is already in the hands of the Economic Department for consideration.

Mr. C. W. Ayer reports that the arrangement of the books on Italian history and literature and on Spanish history and literature has been completed, and that the arrangement of the Scandinavian collection is well advanced. Special attention was given to the preparation of alphabetical lists of authors by centuries, difficulties with regard to the form of proper names, especially of Spanish authors, being referred chiefly to Professor A. R. Marsh. This work is designed to aid not only the shelf department, but also the cataloguing department in the definite and accurate assignment of each author to his place.

The arrangement of the other collections of the Romance group, Portuguese, Provençal, Catalan, Rhaeto-Romanic, and Roumanian,

is well under way, but its completion has been postponed until after that of the Scandinavian collection, the Scandinavian books being in immediate demand on account of new courses offered by Mr. W. H. Schofield and Dr. A. C. Coolidge. From Mr. Schofield in particular invaluable aid has been received in the arrangement of the Scandinavian collection, especially in the classification of the old Norse sagas.

The Dutch and Flemish collections have been placed between the Romance group and the Scandinavian collection, and their rearrangement in one group will be next in order after those now in progress.

Space for further work in the west stack has been gained by picking out and removing to the first floor of the east stack the sets of general periodicals, both English and foreign. No space now remains in the east stack for any new classes, such as Oriental history and literature, which would naturally find its place here by the side of the history and literature of other countries. In the west stack we shall have room for the re-classification of the natural sciences, for economics and education; but it is doubtful if we can go on with theology and church history, the only large groups, beside the Asiatic and African collections (history, description, and literature), which will then remain unclassified.

Mr. W. D. Goddard, who gives about half his time to the care of the class-room libraries, and half, under Mr. Carney's direction, to the care of the shelves in the College Library, reports that the annual examination of the shelves was begun the latter part of October, 1897, and carried on continuously during afternoons throughout the year. The time allotted was sufficient to go through the whole library twice, thus insuring better order of books on the shelves. The number of misplacements corrected in each examination was about 100, comparing not unfavorably with the record of last year. The number of missing books is 60; 25 volumes having been lost from the Reading-room, and 35 from the stack. 33 volumes reported missing in other years have come to light during the past year.

The following table shows the losses in volumes for sixteen years. These figures relate only to that portion of the Library which has been classified and to books received since 1877. For the earlier acquisitions (those before 1877) not yet re-classified, we have not the means for a satisfactory examination:—

VOLUMES LOST.	Reported lost.	Later found.	Now missing, 1898.		
			Reserved.	Stack.	Total.
1883	78	37	17	24	41
1884	51	41	3	7	10
1885	70	34	24	12	36
1886	48	26	8	14	22
1887	55	23	8	■	13
1888	49	30	12	7	19
1889	34	20	10	4	14
1890	93	61	21	11	32
1891	175	37	115	23	138
1892	65	22	24	19	43
1893	53	25	20	8	28
1894	165	53	106	6	112
1895	77	40	28	9	37
1896	94	■	59	17	76
1897	55	9	22	24	46
1898	60	..	25	35	60
Totals	1202	476	502	224	726

CATALOGUE DEPARTMENT.

The work of the Catalogue Department as compared with previous years is roughly shown by the following table : —

CATALOGUE WORK.	1883-84.	1894-95.	1895-96.	1896-97.	1897-98.
Titles catalogued					
for College Library . . .	7,753	8,350	7,564	8,990	9,974
for Departments, etc. . .	2,264	2,008	2,668	2,320	3,026
Total	10,017	10,358	10,232	11,310	13,000
Cards added to Catalogue . .	20,168	19,989	27,428	21,282	25,093

Miss M. Helen Pope, who joined the staff of the Library in 1875, but had partially withdrawn from active work in 1895 on account of illness, died on September 9, 1898. She was one of our best and most experienced cataloguers, and to her was generally intrusted the first training of new assistants, so that many of the past and present members of the Library staff (including the Librarian) remember her with gratitude and affection. Two other assistants have left, one tempted by better pay elsewhere; the other, it is expected, will return to us later. The extended report of Mr. Tillinghast, Assistant Librarian, covers many details of the work of the catalogue

staff. The points of more general interest noted by him are briefly mentioned here. The year ends with 4,865 titles on hand not recorded in the public catalogue, a slight reduction from the number on hand a year ago. Of these, 3,448 are recent gifts, and of the remaining 1,417 acquired by purchase, 1,156 have come to the Library since January 1, 1898. The latter are on the catalogners' or classifiers' shelves awaiting immediate treatment, while most of the former, being of little present interest and in general of slight value, are placed in a division of the stack where they are arranged in order of the temporary numbers assigned to them when first received. They have bookplates and can therefore circulate if called for, and they can be found almost as surely and quickly as the books which are fully entered on the public catalogue, through the temporary slips that are written for them. During the summer, all the remaining Russian and some of the other Slavic books (about 550 titles) in the collection presented two years ago by Dr. Coolidge, were catalogued with the help of Mr. Leo Wiener. Work was also begun during the summer on the volumes of pamphlets, now almost 1,500 in number, which have been bound up during recent years and sent to the shelves uncatalogued. Two assistants were temporarily engaged especially for this work, and in six weeks disposed of 162 volumes, containing 1,871 pamphlets which needed to have some record made of them, 52 which were found to be already catalogued and several hundred others which were simply extracts from periodicals, circulars, etc., and were not thought to be worth cataloguing separately. In general, author entries alone were made for the individual pamphlets catalogued; and under subject headings, instead of entering the title of each pamphlet separately, references to the volume as a whole were inserted. It is desirable that this work should be pushed on as rapidly as possible since these bound volumes contain, beside thousands of uncatalogued pamphlets, many taken from the old pamphlet files which, though fully catalogued and formerly accessible in those files, are now found with difficulty in the bound volumes, the cards for them in the catalogue not having been marked to show their present location.

In January work was begun in coöperation with the Boston Public Library, the New York Public Library, the Columbia University Library and the John Crerar Library of Chicago in cataloguing the articles in about 185 serial publications including those of the chief learned societies and many periodicals devoted to history, geography, philology, economics and fine arts. The list was drawn up and agreed upon by representatives of the five libraries, and each of the five undertakes to catalogue about one-fifth of the material. The

titles are sent in by each library to the Publishing Section of the American Library Association, which superintends the printing of them on cards and distributes full sets of the printed cards to each of the five libraries, and to a number of other subscribers. A great mass of material (amounting probably to about 3,000 titles a year) is in this way made available at comparatively small expense. The price of the cards has been set in the first instance at \$3 per hundred titles (two cards for each title), and will probably be reduced. To the coöperating libraries an allowance is made of ten cents a title for each title catalogued by them, which just about covers the cost of the cataloguing. We take four copies of each card instead of two (extra sets being furnished at the mere cost of material and press-work); three of these we reserve for our own use, the fourth set we distribute to the department libraries, and at a small charge to any professor who wishes to receive the titles relating to his own specialty. For the present the cards prepared for our own catalogue have been kept by themselves, but arranged on the same system as those in the public author and subject catalogues; it is to be expected that later they will be transferred to the general catalogue.

Books have been catalogued during the year for thirty-two different department, laboratory and class-room libraries. The collections in the Botanical laboratory and the Mineralogical laboratory having never been systematically recorded, all the uncatalogued books (about 400 volumes) were brought over to the College Library in the summer and catalogued, so that now the record of these books is complete both in the central catalogue and in the laboratory.

Mr. Tufts reports for the Map Collection the receipt of 17 atlases, 7 roller maps and 582 sheets for the portfolios.

ORDERING DEPARTMENT AND FINANCIAL CONDITION.

The following table shows the income of our book-funds, receipts from other sources for the purchase of books, and expenditure for books during the last six years.

The table shows that while the income of our funds has diminished at the rate of a thousand dollars a year since 1895-96, our purchases have not been reduced, but have amounted to about the same sum in each of the last five years, except in 1895-96, when they exceeded the average by about \$2,000. The consequence is that the balance of more than \$4,000 of unexpended income which existed August 1, 1895, has been spent, leaving a balance of \$737 August 1, 1898; and the Treasurer's estimate of income for the year 1898-99 is

INCOME AND EXPENDITURE.	1892-93.	1893-94.	1894-95.	1895-96.	1896-97.	1897-98.
From book Funds, —						
Balance from previous year	\$2,914	\$2,288	\$3,509	\$4,131	\$2,864	\$2,808
Income of the year	15,956	15,953	14,916	15,189	13,991	13,010
Total available	18,870	18,241	18,425	19,320	16,855	15,818
Spent for books	16,582	14,732	14,294	16,456	14,552	14,576
Balance to next year . . .	2,288	3,509	4,131	2,864	2,303	737
Special gifts, sales, etc. —						
Balance from previous year	1,096	1,114	1,184	1,396	1,205	1,176
Received during the year .	■ ■ ■	446	■ ■ ■	2,958	349	506
Total available	1,433	1,560	1,718	4,354	1,554	1,682
Spent for books	819	876	822	3,149	378	848
Balance to next year . . .	1,114	1,184	1,396	1,205	1,176	839
Total spent for books, —						
College Library	\$16,901	\$15,108	\$14,616	\$19,605	\$14,930	\$15,419
Department Libraries * . .	3,218	4,855	5,028	5,184	4,070	5,322
Total	\$20,119	\$19,463	\$19,644	\$24,789	\$19,000	\$20,741

only about \$12,000, or \$18,465 including the unexpended balances of former income and of special gifts. The estimated annual charges — for periodicals and binding, \$8,700, for incomplete works of which parts may be expected in the course of the year (known as "continuations"), \$3,600, for unfilled orders, \$2,800, and for freight, \$900 — amount to \$10,400, leaving only \$1,600 of the year's income free for new orders, a sum of course altogether inadequate to supply the needs of the Library.†

Although the action of the President and Fellows referred to in the note below, has increased the Library's income to the point it had reached in 1892-93, yet in view of the constantly growing demands on the Library, as new fields of study are opened, and new courses of instruction established, it is evident that the Library

* Not including the Law School, which spends from \$3,600 to \$11,000 a year for books, but does not order through the College Library.

† On October 24, 1898, upon request of the Library Council for additional means for the purchase of books, the President and Fellows voted to establish the Henry L. Pierce fund of \$50,000, the income to be used for the purchase of books, and to appropriate for the purchase of books until further order the income of \$50,000 more from the residuary bequest of Henry L. Pierce. This welcome addition to the resources of the Library brings up our income to about the same amount that it had reached in 1892-93; that is, it just makes good the loss resulting from the general decline since that time in the rate of interest.

needs still larger additions to its book-funds to enable it to satisfy even the most pressing demands made upon it. The Library at present derives its income for books from 28 different funds, varying in amount from \$2,000 to \$60,000, and commemorating the names of as many different benefactors. The accounts of each fund are strictly and accurately kept. Each book bought is assigned to one or another fund, and bears ever after on its bookplate the name of the donor. Some of the book funds are unrestricted in their application, others are confined to purchases in a special field, as the Constantius Fund (the legacy of Professor Sophocles) for Greek, Latin, and Arabic, the Sales Fund for Spanish, the Sumner Fund for Politics and Fine Arts, and the Wolcott Fund for History, Political Economy and Sociology. The establishment of other funds would be very welcome, either restricted or unrestricted as to their use. Among the subjects not yet specifically provided for are American History, Ethnology, Folklore, Music, Sanskrit, Scandinavian, Slavic and Celtic literatures, all the modern literatures except Spanish, and all the departments of Science except Mathematics, Astronomy and Physics. A special fund for periodical publications, which are always a heavy burden on the income of a library, would be desirable; also a special fund for the purchase of rare and curious books, books interesting on account of their beauty, their early date, or some special circumstance connected with their production or ownership, but not of direct value for college instruction and therefore not properly chargeable to the general library funds.

The work of the Ordering Department, in charge of Mr. Potter, is summed up in the following table:—

WORK OF ORDERING DEPARTMENT.	1903-04.	1904-05.	1905-06.	1906-07.	1907-08.
New orders, —					
Total received and examined . . .	8,573	7,820	5,744	4,152	6,687
Already owned or ordered . . .	745	2,218	1,868	964	1,383
Forwarded	2,192	5,609	3,798	3,016	3,746
Estimate of cost, —					
For the College Library	\$3,988	\$12,445	\$9,223	\$5,970	\$6,765
For Departments	2,984	3,240	4,556	3,245	3,306
Total estimated cost	6,902	15,685	13,779	9,215	10,071
Shipments received from abroad . . .	29	27	28	22	■
*No. of vols. bought for College Lib. .	2,932	5,203	5,854	3,531	4,335
†Total gifts examined and passed on .	22,624	11,873	12,811	13,475	14,011

* Excluding volumes formed by binding periodicals and pamphlets.

† Including both volumes and pamphlets. See p. 210.

The estimated amount of our orders was distributed among the agents in different countries in about the same proportions as in other recent years, except that the purchases at the Deane Sale in March 1898 raised the proportion of American purchases. A table showing the distribution for a number of years was printed in the last report. There is a good deal of fluctuation from year to year, but the figures for the last seven years taken together show that during that time about 24 per cent. of our orders have gone to American agents, 26 per cent. to England, 18 per cent. to France, 30 per cent. to Germany, 5 per cent. to Italy, 1 per cent. to Denmark (Scandinavian books), and almost 1 per cent. to Spain. It should be remembered, however, that many orders for Scandinavian and Slavic books have been sent to Germany, and many Spanish books and books in other languages have been bought in London.

The Harvard Coöperative Society sends in regularly on approval a large number of the new books published. These books remain on the counter in the Collating Room for a week or more and are open to the inspection of all the officers of the College. The attention of those who are charged with the responsibility of selecting books for the Library is especially called to this opportunity of examining most of the new English and American books.

That the work of the ordering department is well organized is shown by the fact that from the 3,746 orders sent out only twenty-seven unintentional duplicates resulted. The total cost of these was \$59.60, which was a little over one quarter of one per cent. of the total expenditure. Of the whole number, only seven were due to carelessness or errors in looking up the orders in the first place, three to errors in the catalogue, ten to inaccurate order slips or imperfect entries in second-hand catalogues, and the rest to various other unavoidable causes. When the difficult character of the orders sent from a scholars' library is considered, this may be regarded as a very creditable result. Four of the duplicates were disposed of at cost (\$20.87), one was exchanged for its full value (\$2), five were utilized in some part of the Library, and the rest were put with our other accumulated duplicates for sale or exchange later.

Mr. W. G. Brown, the Deputy Keeper of the University Records, reports as follows in regard to the two collections under his care, the University Archives comprising records and papers of all departments of the University (555 volumes and 214 bundles) and the Harvard University Collection, which contains the publications of the University and a great variety of material, mostly printed, illustrating its history from every point of view, the whole now

amounting to 2,187 volumes, 290 pamphlets, and 381 boxes and bundles : —

“The Calendar of Harvard College Papers prepared several years ago under Mr. Winsor's direction with explanatory notes and a careful index seems to be a good thing to print whenever it may be convenient to print anything about the archives. The Calendar covers the series of Harvard College papers from the beginning to the year 1805, and the Index makes it possible to find instantly any allusion to an individual in the papers. Many of the papers are interesting and not a few have historical value. The plan of the calendar is similar to that adopted by Mr. Douglas Brymner in his Calendar of the Canadian Archives.

“Last spring a circular was printed and distributed calling the attention of officers, students and other friends of the University to the ‘Harvard University Collection’ and asking their coöperation in keeping it supplied with everything that should be preserved in it, including, beside historical and descriptive matter of all kinds, the publications of officers, reports and catalogues of Harvard Clubs, reports, photographs, and other memoranda of College Classes, printed and manuscript matter relating to college societies, complete sets of student publications, biographical items in regard to the benefactors of the University, and photographs of the College buildings and of persons and places in Cambridge. It is important that the collection should be systematically maintained and regularly cared for, but the time and attention required increases from year to year, and in consequence of the demand this makes upon his time, the ability of the Deputy Keeper to discharge the duties thrown upon him as a sort of official repository of information about University history is seriously hampered. The list of University portraits and much correspondence are visible evidence of the work of this kind he has had to do, but most of it is done in obedience to requests from various officers of the University who now regularly come to him for information, and whose queries frequently take hours of research to answer. Relief from some of the routine work on this collection would enable him to do a good many things for which he does not now find time ; e. g., to index the Faculty Records and other series in the Archives, to make a card catalogue of the Harvard University Collection, and to put into print in one form or another some of the information he has acquired about his two collections and about the University's history.”

On November 6, 1897, the Staff of the Library met and adopted the following minute which deserves to be here recorded as an admirable

statement of the place Mr. Winsor held in the estimation of those who worked under him and as a characteristic expression of the feeling towards library work inspired by his influence : —

“ The members of the staff of Harvard College Library desire to put on record some expression of their sorrow at the death of Justin Winsor, for twenty years Librarian of the University, and of the honor in which they hold his memory.

“ The university community has lost in him a tireless helper ; historical students everywhere have lost a guide ; but to us who were privileged to serve under him the loss is immediate and personal. Our debt to him is twofold. Each of us has profited by the daily contact with a masterful personality, by the stimulus of a high-purposed leadership, by the example of a marvelous industry. This is the debt we owe as individuals.

“ As men and women engaged in a common work we owe another debt — a debt that is shared by all workers in libraries. To the administration of libraries he brought abilities of such an order as had rarely if ever before been so devoted, and he proved that such abilities are not wasted but on the contrary are demanded in the care of books. Whoever, therefore, shall devote himself to the care of books must find his work dignified, his place in the community elevated because of the life-work of Justin Winsor.

“ To this simple acknowledgment of our debt to the librarian we would only add our testimony that the man was equally worthy of esteem and honor ; and that he was in all things a good and faithful servant of Harvard University.”

In closing this my first annual report I wish to bear witness to the fidelity and discretion with which the Library was administered during the interval between Mr. Winsor's death and the time when I took charge (April 4, 1898), and to express my gratitude for the hearty welcome and unfailing coöperation and support that I have received from the whole staff and from the officers of the University.

WILLIAM COOLIDGE LANE,
Librarian.

THE GRAY HERBARIUM.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—The specimens of dried plants received by the Gray Herbarium during the year 1897–98 have numbered 14,022. The more important acquisitions by gift or exchange were as follows: From George Vanderbilt, Esq., through Mr. C. D. Beadle, curator of the Biltmore Herbarium, 1,711 plants of the Southern States, including many duplicates from the Chapman Herbarium; from Mr. F. V. Coville and Dr. J. N. Rose of the U. S. National Museum, 876 plants, chiefly from Mexico and the State of Washington; from Mr. W. M. Canby, 221 plants of northwestern North America; from Mr. W. T. Thiselton Dyer of the Royal Gardens at Kew, 311 plants of Borneo, collected by G. Haviland; from the Middlesex Institute, through Messrs. L. L. Dame and F. S. Collins, 699 plants; from Judge J. R. Churchill, 162 plants of Jamaica; from Professors W. J. Beal and C. F. Wheeler, 326 plants of Michigan; from Professor Franz Buchenau, 185 plants, chiefly of rarer European species; from Professor L. H. Pammel, 690 plants of Iowa, Nebraska, and Wyoming; from Mr. W. P. Rich, 100 plants of New England and 148 plants of Ohio and Indiana; from the New England Botanical Club, 167 miscellaneous duplicates; from Professor C. Conzatti and V. Gonzales, 497 plants of Southern Mexico, including many noteworthy and some new species; from Professor P. MacOwan, 71 rare plants of S. Africa, including the *Welwitschia mirabilis*; from Professor J. W. Blankinship, 143 plants of Missouri and Montana; from Professor M. E. Jones, 205 plants of the Great Basin, including many specimens of the difficult genus *Astragalus*; from the Boissier Herbarium, through M. Eug. Aufran, 288 plants from Madeira, Costa Rica, and the Liu-Kiu Ids.; from Mr. David Prain of the Royal Botanic Gardens at Sibpur, a notable set of 354 orchids of Sikkim, critically identified during the preparation of a compendious monograph by Sir George King and R. Pantling. The chief acquisitions by purchase have been: 252 plants of Lower California collected by Mr. A. W. Anthony; two centuries of Florida plants collected by Mr. A. H. Curtiss; 459 plants of Indian Territory, Oklahoma, and California, collected by Mr. J. W. Blankinship; and 167 plants of Kansas, collected by Professor A. S. Hitchcock and assistants.

During the year 17,194 duplicate specimens have been sent out as exchanges or by sale to 48 other herbaria and correspondents.

All members of the herbarium staff have spent more or less time in field work. Mr. C. G. Pringle has completed his thirteenth season of collecting in the uplands of Mexico, his expert knowledge of the flora enabling him, as on former expeditions, to secure a large number of new and noteworthy plants. Mr. M. L. Fernald has continued his botanical exploration of Maine, again securing many plants new to the region and some new to science. Miss M. A. Day has collected 2,755 plants in Southern Vermont to be used largely in foreign exchanges.

During the year 10,308 sheets of mounted plants have been added to the organized portion of the Gray Herbarium. The Library of the Herbarium has been increased by 71 volumes and 225 pamphlets. It has been also enriched by a gift of more than 1,100 autograph letters and manuscripts of famous botanists. This notable collection was begun by Dr. Asa Gray in 1838 and continued through his life. Its extent and value have been much augmented by the incorporation of similar collections from Mrs. Thomas P. James and Baron V. Cesati. The whole collection, thus formed, has been carefully arranged and admirably mounted under the direction of Mrs. Gray, who has now presented it in five large folios, with an appropriate case, to the Library of the Gray Herbarium. All the autographs are accompanied by historical data, and very many by photographs or portrait engravings of the authors.

The Curator has another part of the *Synoptical Flora of North America*, to include the large order of Leguminosae, already well under way; while further critical study upon the flora of Mexico has been continued through the year by Mr. J. M. Greenman.

Early in the year an earnest movement was initiated to place the Herbarium upon a more secure financial basis. To this end, a generous patron has offered the sum of \$20,000 as endowment for a memorial professorship to be called the *Asa Gray Professorship of Systematic Botany*, — a chair for research, to be united with the position of Curator of the Herbarium. To stimulate further gifts this offer is made conditional, and the amount is available only if, on or before Commencement Day, 1899, another sum of not less than \$30,000, to be known as the *Asa Gray Memorial Fund*, be secured, the income of which is to be used for salaries of assistants, purchase of specimens, and other expenses of the Herbarium. Of the latter sum, \$9,650 had been subscribed by June, 1898,* largely through

* As the formation of this fund is being continued and only a few of the subscriptions have as yet been paid in, it seems best to defer specific acknowledgments until the next report.

the generosity and influence of the Visiting Committee. Progress in this movement, temporarily interrupted by the financial uncertainties of war-time, has this autumn been renewed, and it is hoped that all friends of the Herbarium may realize the importance of securing this much needed addition to the present inadequate endowment of the establishment. The financial needs of the Gray Herbarium are now pressing, and unless they can be met by gifts for present use, as well as increased endowment, the long-continued scientific activity of the Herbarium must be considerably curtailed.

The publications of the Herbarium during the year have been :

A case of ecblastesis and axial proliferation in *Lepidium apetalum* ; by B. L. Robinson, Bot. Gaz. xxiv, 209-212, t. 9.

Contributions from the Gray Herbarium, n. s., No. xii; by M. L. Fernald, Proc. Am. Acad. xxxiii, 57-94; including I. A systematic study of the United States and Mexican species of *Pectis*; II. Some rare and undescribed plants, collected by Dr. Edw. Palmer, at Acapulco, Mexico.

Antennaria plantaginea and *A. Parlínii*; by M. L. Fernald, Asa Gray Bull. v, 91-93, t. 2.

The publication of new binomials in works of composite authorship; by B. L. Robinson, Erythea, v, 127-128.

Notes on Florida plants; by M. L. Fernald, Bot. Gaz. xxiv, 433-436.

New species and extended ranges of North American *Caryophyllaceae*; by B. L. Robinson, Bot. Gaz. xxv, 165-171, t. 13.

Contributions from the Gray Herbarium, n. s., No. xiii; by B. L. Robinson, Proc. Am. Acad. xxxiii, 305-334; including I. Revision of the North American and Mexican species of *Mimosa*; II. Revision of the North American species of *Neptunia*.

Some new and other noteworthy plants of the Northwest; by J. M. Greenman, Bot. Gaz. xxv, 261-269.

Notes upon some Northwestern *Castillejas* of the *parviflora* group; by M. L. Fernald, Erythea, vi, 41-51.

The genus *Antennaria* in New England; by M. L. Fernald, Proc. Bost. Soc. Nat. Hist. xxviii, 237-249.

Contributions from the Gray Herbarium, n. s., No. xiv; by J. M. Greenman, Proc. Am. Acad. xxxiii, 455-489; including I. Revision of the Mexican and Central American species of *Galium* and *Relbunium*; II. Diagnoses of new and critical Mexican phanerogams.

Some reasons why the Rochester nomenclature cannot be regarded as a consistent or stable system; by B. L. Robinson, Bot. Gaz. xxv, 437-445.

A new *Apios* from Kentucky; by B. L. Robinson, l. c. 450-453.

Notes on the genus *Bartonia*; by B. L. Robinson, l. c. xxvi, 46-48.

B. L. ROBINSON, Curator.

THE BOTANIC GARDEN.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—As Director of the Botanic Garden, I have the honor of presenting my report for the academic year 1897-98.

The Head-Gardener, Mr. Robert Cameron, reports the past season as having been favorable for nearly all classes of plants in the Garden. He states that the work of transplanting was carried on with few hindrances and with comparatively little loss. The summer was characterized by a heavy rainfall well distributed through the hot months, so that all the herbaceous plants were in an unusually vigorous condition.

At favorable times, during the year, a few important changes in the arrangement of our plants have been successfully made, with the purpose of illustrating to our students the newer systems of classification, particularly that of Professor Van Tieghem. The experiment proved so far successful, that we now plan extending the changes somewhat farther in certain new directions. The small size of the space at our command and the definite limitations imposed by the many large trees we have, render such experiments difficult, but they seem to be worth trying.

Collections of living plants illustrating special subjects have proved very satisfactory. Three plots have been somewhat more fully shown this year; namely, plants used in the arts, and the species alluded to by Shakspeare and Virgil. A fourth was added early in the spring, and it began to attract at once a good deal of interest. This new group was made up of selections from the varieties described by Parkinson, as having been employed for decorative purposes, early in the seventeenth century, and which doubtless were used in the too scanty decoration of our colonial homes in the days when Harvard College was founded. This plot will be still further enlarged by the introduction of a few more old-fashioned plants.

Our labels have been cared for by the efficient Nomenclator, Mr. M. L. Fernald, Assistant in the Herbarium. Under his careful supervision the errors in labelling have been reduced to a minimum, and nearly all parts of the system are in satisfactory condition.

The number of visitors, especially on Sundays, has been large. With the exception of a few undisciplined children, all of these visitors are welcome guests, but the small contingent of unruly children has made it necessary for us to keep on guard, at least one policeman in uniform besides the regular watchman. If this annoyance continues next year, very stringent measures will be taken to stop it.

There is an increased attendance at the Garden of the Public School children who are studying Botany. They are desirable visitors, and every effort is made to render the Garden useful to them. One of the subscribers to our Botanic Garden Fund, Mr. John Cummings of Woburn, has at times expressed himself so strongly in regard to the benefits accruing to the schools from this policy, that we felt justified in giving it a fair trial. We are now fully convinced that the policy is sound.

Our exchanges have been extensive and satisfactory. The relations with the Herbarium and the Arnold Arboretum are of a most pleasant nature. From both we are in receipt of many courtesies.

We have had a trying experience with our large water-lily pond. After the sewer on Raymond Street was completed, the level of the water in our pond began to fall, and the springs which supplied it with fresh water became ineffective. Next, the water in the pond, in spite of all that could be done, became unfit for our uses. Finally it was decided to fill up the entire pond, and prevent the stagnant water from becoming a nuisance. At large expense this filling has been completed, and we have lost what was formerly an attractive feature of the Garden.

Repairs on the old greenhouses in the Garden have of late been extensive and costly. In the spring it was plain that extraordinary repairs would again be required by the falling greenhouses in the rear of the first range. The question arose whether it would be better to patch up these old greenhouses, or replace them at once by cheap new structures, with the hope of saving loss incident to further makeshift repairs. While the subject was under consideration, a friend of the University, who had expressed himself as much interested in the botanical exhibit (especially the glass models of flowers) sent by Harvard to the Columbian Exposition at Chicago, entered into correspondence with the Director, with a view of making a considerable contribution to the resources of the botanical department. After long consultation it was decided that a new range of greenhouses to take the place of our oldest ones, would be the most acceptable form which the gift could take. The only conditions imposed by the

generous giver were these: the proposed greenhouses, erected in memory of his mother, should be "beautiful, useful, and permanent." From competitive sketches and estimates, a plan was selected which, by its judicious management of space and its ample proportions, secured large usefulness; the employment of steel and iron in all parts of the framework assured permanency; the requirement of beauty was certainly met by the choice by our anonymous friend of the most attractive of the plans.

It is believed that the new buildings represent one of the most interesting recent gifts to the University, both in their origin and completeness. The first section of the structure is used for plants of economic interest; the second for large tropical species; the third for plants having a wide morphological interest; the fourth for experimental physiology; and a fifth for seedlings and cuttings. Adjoining the experimental portion, there has been erected a convenient house for apparatus and the working library.

Out of the waste materials left on tearing down the dilapidated old greenhouses, our frugal Head-Gardener has built at small expense a greenhouse, 75 feet long, 16 feet wide, and 11 feet high in the clear. All of these houses are heated by the battery of boilers in the lower range, and although we have now many more square feet of glass than before, the demand on the coal supply is not much greater than before. The new houses do not waste the heat.

The good advantages offered for instruction in Botany at the Garden during the vacation were made use of by about twenty pupils from different remote parts of our country. Although this course makes a severe draft on the teachers who have been busy with College classes throughout the year, the zeal and enthusiasm of the summer students are so great that the burden is much lightened.

The Garden has continued to provide material for the botanical students at Radcliffe.

The Museum itself has been enriched during the year in many ways. Dr. Farlow has completed the cases, on the first floor, for an interesting display of Cryptogamia. The Ware collection continues to increase, and proves to be a feature attractive to the general public. The utility of the Ware collection in illustrating the principles of scientific classification has become much enhanced by the latest acquisitions from Mr. Blaschka's studio. Many of the gaps which existed previously in the series are now filling up, in such a way as to indicate with clearness the more important relationships.

For many years the Director has been engaged, both in the Garden and Museum, in bringing together material to illustrate the useful

products of plants, and the methods by which they can be improved. During the last ten years the material has increased so rapidly, both in amount and value, that it now seems proper to explain briefly the plans by which the collections can be utilized by the public and by special students of economic botany. Most of the various departments are now well represented: specimens illustrating food-plants and their products, the fibres, timbers, cabinet-woods, tans, oils, resins, rubbers, dyes, perfumes, and remedial agents, are abundant and are now adequately housed. The more important of these are accessible to people who may wish to identify novel plant-products, and all are available to special investigators.

The Director has long devoted himself to the preparation of an illustrated index to this material in the Museum, which, on its publication, may serve as a comprehensive dictionary of economic botany and an indication of its possibilities. Further material from certain districts, especially from the West India Islands, the Philippines, and from China, may be regarded as among the most pressing desiderata at the present time. Arrangements for the acquisition of desirable specimens from these countries either by gift, exchange, or purchase will be gladly entered into by correspondence.

The collections of fossil plants have received during the year, careful study at the hands of Dr. Robert T. Jackson. Cases and trays have been provided for a large part of the specimens, and they are now for the first time accessible to specialists, under convenient conditions. It is extremely desirable that the rest of the collection should be speedily arranged by Dr. Jackson, and made available to advanced students of palaeontology. Probably four years would suffice for this work, provided Dr. Jackson could continue to give to it as much of his spare time as he has been able to during the year just closing. It is pleasant to report that this collection, entrusted to our department by Dr. Alexander Agassiz, is on its way towards good service; but the Director would be glad to hasten the time when all of its treasures may be safely submitted to special students of palaeontology. For about two thousand dollars, the task of arranging could be well done.

The past year has been marked by generous gifts to the Garden and Museum, all of which are mentioned in the Report of the Treasurer. For his success in obtaining funds for the support of these parts of the Botanical establishment, the Director has been largely indebted, as in former years, to the interest and coöperation of the Overseers' Committee, and its wise chairman, Col. Henry Lee.

Without this generous interest, the task of the Director, as he has had occasion to say before, would have been hopeless: with it it has been an agreeable duty.

In recent years, the interests of the Botanic Garden and its associated Museum have become so diversified that the administration now involves a great deal of responsibility and anxious care. It therefore seems proper that this responsibility should be shared, if possible by a younger man. The Director has respectfully requested the Corporation to authorize the selection of an Assistant Director of the Botanic Garden. Should the request be granted, he would proceed to suggest the name of a recent graduate of the University who can bring to its service sound training in Botany and Horticulture and large experience in practical details connected with the administration of garden affairs.

GEORGE LINCOLN GOODALE, *Director.*

THE ARNOLD ARBORETUM.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—I have the honor to submit the following report on the progress and condition of the Arnold Arboretum during the year ending July 31st, 1898:—

The usual popular courses in dendrology have been given during the year by Mr. J. G. Jack, and two special students have studied American trees in the Arboretum preparatory to entering one of the Forest Schools of Europe.

The addition made to the income of the Arboretum by the gift of the trustees of the Massachusetts Society for Promoting Agriculture has made it possible to improve and extend the permanent generic tree groups in which several vacancies have been filled during the year. Special attention, too, has been given to completing the type collection of shrubs and thinning the natural woods. All the living plants, both in the systematic groups and in the natural woods, are in a satisfactory condition and in most cases are growing rapidly. The Park Commissioners of the City of Boston under the provisions of their contract with the University have done a large amount of road-building on Peters' Hill which can be opened to the public before the end of the present year.

The interchange of plants and seeds with other botanical and horticultural establishments has been continued during the year. There have been 12,474 plants (including grafts and cuttings) and 1,102 packets of seeds distributed as follows: To the United States and Canada 10,175 plants and 490 packets of seeds; to Great Britain 1,678 plants and 283 packets of seeds; to the continent of Europe 621 plants and 196 packets of seeds; to Japan 133 packets of seeds. There have been received during the year 2,404 plants (including grafts and cuttings) and 261 packets of seeds.

New cases, presented by Mr. H. H. Hunnewell, which nearly double the space available for the herbarium have been built during the year; and 2,488 sheets of dried plants, largely from North America, have been added.

The library has received by gift 291 volumes and 159 pamphlets, including the illustrated edition of Blanco's *Flora de Filipinas* in six folio volumes, presented by Mr. Benjamin F. Stevens of Boston, and the two folio volumes of Humboldt & Bonpland's *Plantas Æquinoctiales* from Mr. Arthur T. Lyman of Boston.

During the year the eleventh volume of *The Silva of North America* has been published and the twelfth volume has been printed.

C. S. SARGENT, *Director.*

THE CHEMICAL LABORATORY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR,—The courses of instruction offered were substantially the same as those of the previous year. The course in Quantitative Analysis (Chemistry 4) was given by Mr. G. P. Baxter, while Mr. J. P. Sylvester took charge of the course in Qualitative Analysis (Chemistry 3); in the previous year these gentlemen had given the laboratory instruction in these courses. Dr. H. E. Sawyer gave a course of lectures upon the Chemistry of Fermentation during the second half-year.

The number of students in the several laboratory courses during the year and in June, 1897, was as follows:—

	October, 1897.	January 1st, 1898.	June 1st, 1898.	June 1st, 1897.
Chemistry <i>B</i>	76	75	68	66
Chemistry 1	335	318	298	272
Chemistry 3	108	99	98	98
Chemistry 4	30	28	24	28
Chemistry 5	29	24	24	14
Chemistry 6	10	10	9	4
Chemistry 9	9	9	..	..
Chemistry 10 . . . . .	..	..	10	9
Chemistry 20a	5	5	5	3
Chemistry 20b	6	6	5	4
Chemistry 20c	3	3	3	4
Chemistry 20d	2	3	2	1
Special	5	4	4	7
Total	618	578	550	510

For several years it has been difficult to provide working places for the large number of students in General Descriptive Chemistry (Chemistry 1) and Qualitative Analysis (Chemistry 3); this year the number of applicants in these two courses was so great that it was impossible to supply all with desks. Some of the men who thus failed to obtain places in the laboratory immediately withdrew into courses in other subjects, but twelve of them preferred to allow their applications to remain on file, and took their places, one by one, as desks became vacant during the month of October; the work of these students suffered serious interruption, and many of them were

late in applying for desks through no fault of their own. In our other courses every applicant could be given a desk, but every place was then filled, and the need of better accommodations for our more advanced students is now as imperative as the necessity of providing for the increasing number of our elementary students. The alterations made in Boylston Hall during the past few years have greatly increased its capacity, but the limit of expansion, without extending the outer walls, seems to have been reached. In the last five years our numbers have exactly doubled; in June, 1893, 272 students were at work in our laboratories, in June, 1898, there were 550.

An unusual number of scientific investigations were carried on during the year. The following work was done under the direction of Professor Jackson: Mr. W. Koch made a careful study of the action of sodic ethylate upon tribromdinitrobenzol; he also prepared a solution of the long sought orthobenzoquinone by the action of iodine upon the lead salt of pyrocatechin, although he has not yet been able to isolate the body; Mr. R. W. Fuller prepared diparabrombenzylcyanamide directly from the silver salt of cyanamide; Mr. P. M. Wheeler studied the constitution of the α -paradibromdinitrobenzol, and Mr. G. W. Heimrod some derivatives of paraphenyldiamine; Mr. F. H. Gazzolo studied the action of sodic ethylate upon certain derivatives of mesitylen, and Mr. I. H. Derby prepared and analyzed anhydrous ferrous iodide.

Professor Richards made an extended study of the occlusion and unequal release of gases by oxides of metals formed from nitrates, and found that the excess of oxygen usually present in such material has a tendency to work its way out by a process of dissociation and recombination; he also made some experiments upon the cause of the sour taste of acids, and devised several forms of apparatus for generating gases. The following investigations were made under his direction: Mr. A. S. Cushman and Mr. G. P. Baxter continued the determination of the atomic weights of nickel and cobalt respectively upon which they had been engaged during the previous year; Mr. B. S. Merigold investigated the atomic weight of uranium; Dr. C. McC. Gordon finished a series of measurements of the potentials of galvanic cells composed of metallic plates immersed in fused salts at high temperatures, which led to an interesting application of the Nernst formula; Mr. E. Collins nearly completed the attempt to verify with the utmost nicety Faraday's law of electrolysis; Mr. G. N. Lewis made an accurate series of experiments upon the contact potentials of amalgams of varying strengths in salt solutions, and extended his practical as well as his mathematical work to the con-

sideration of the unamalgamated metal; Messrs. W. L. Harrington and L. S. Henderson studied an interesting case where the addition of a solid to a solution caused a lowering instead of a rise in its boiling point; Mr. F. R. Fraprie studied the transition temperatures of potassic manganous sulphate; Mr. H. B. Faber investigated the solubility of silver salts in sodic thiosulphate, and Mr. J. B. Churchill studied the melting point of crystallized sodic sulphate in order to secure a new fixed point for the standardizing of thermometers.

Dr. Torrey continued the study of nitromalonic aldehyde and allied bodies with Mr. O. F. Black.

The following work was done under the direction of Professor Hill: Mr. J. P. Sylvester continued his study of certain sulphonic acids of the furfuran group; Dr. I. K. Phelps studied the formation of dehydromucic acid from mucic and saccharic acids, and succeeded in finding an easy method for preparing this acid; Mr. A. S. Wheeler began the study of the products formed from dehydromucic acid by the action of sodium amalgam.

The following papers were published during the year:—

1. A Revision of the Atomic Weight of Nickel; first paper. By T. W. RICHARDS and A. S. CUSHMAN. *Proc. Am. Acad.* xxxiii, 95.

2. A Revision of the Atomic Weight of Cobalt; first paper. By T. W. RICHARDS and G. P. BAXTER. *Proc. Am. Acad.* xxxiii, 113.

3. On the Cuprosammonium Bromides and the Cuprammonium Sulphocyanates. By T. W. RICHARDS and B. S. MERRIGOLD. *Proc. Am. Acad.* xxxiii, 129.

4. On the Oxide of Dichlormethoxyquinonedibenzoylmethylacetal. By C. LORING JACKSON and H. A. TORREY. *Proc. Am. Acad.* xxxiii, 141; *Am. Chem. Journ.* xx, 395.

5. On the Colored Compounds obtained from Sodic Alcoholates and Picryl Chloride. By C. LORING JACKSON and W. F. BOOS. *Proc. Am. Acad.* xxxiii, 173; *Am. Chem. Journ.* xx, 444.

6. The Relation of the Taste of Acids to their Degree of Dissociation. By T. W. RICHARDS. *Am. Chem. Journ.* xx, 121.

7. On the Conversion of Methylpyromucic Acid into Aldehydopyromucic and Dehydromucic Acids. By H. B. HILL and H. E. SAWYER. *Am. Chem. Journ.* xx, 179.

8. A Convenient Gas Generator and a Device for Dissolving Solids. By T. W. RICHARDS. *Am. Chem. Journ.* xx, 189.

9. Die Einwirkung des Jods auf das Bleisalz des Brenzcatechins. By C. LORING JACKSON and WALDEMAR KOCH. *Ber. d. deutsch. chem. Gesellsch.* xxxi, 1457.

10. A Table of Atomic Weights. By T. W. RICHARDS. *Am. Chem. Journ.* xx, 543.

11. On the Cause of the Retention and Release of Gases Occluded by the Oxides of the metals. By T. W. RICHARDS. *Proc. Am. Acad.* xxxiii, 897; *Am. Chem. Journ.* xx, 701.

12. The Transition Temperatures of Sodio Sulphate: a new Fixed Point in Thermometry. By T. W. RICHARDS. *Am. Journ. Science*, vi, 201.

Professor Richards also gave an address upon the Progress in Physical Chemistry before the Chemical Section of the American Association for the Advancement of Science.

The lecture room upon the third floor of Boylston Hall, which has long been used for our smaller classes, proved inconvenient in that it was far removed from the apparatus and collections used in the preparation of experimental lectures. The large room on the south side of the second story, in which this material had been stored, was very high, and a vacant space of several feet had been left between its ceiling and the floor above, when the extensive alterations upon the building were made in 1871. During the summer the ceiling of this room was raised and a new floor laid, dividing it into two stories. The lower story gave floor space enough for a small lecture room capable of seating fifty persons and for a Director's office which had long been needed, while the upper floor, which was readily accessible from either of the three lecture rooms below, gave substantially the same space for the storage of apparatus as the old room. The lecture room in the third story which has thus been set free can next year be fitted up to meet the particular demand which may then seem most pressing.

When the ventilation of the laboratory was improved in the summer of 1895, it was seen that the flues at the west end of the building were too small to secure the proper ventilation of the large lecture room in the second story, but the laboratory was not able at that time to meet the expense of building a larger flue. A brick duct with an area of over ten square feet has now been built, and fitted with a fan large enough to secure an adequate supply of air.

HENRY B. HILL, *Director.*

THE JEFFERSON PHYSICAL LABORATORY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — The number of students who took courses in Physics for the year 1897-98 was 367. The following list gives the numbers in the various courses:—

1897-98.	
Physics <i>B</i> 101	Brought over 351
“ <i>C</i> 72	Physics 9 8
“ 1 100	“ 20a 3
“ 2 3	“ 20b 1
“ 3 14	“ 20c 1
“ 4 14	“ 20d 1
“ 6 ¹ 37	“ 20e 3
“ 6 ² 10	<hr style="width: 100px; margin-left: auto; margin-right: 0;"/> 367
Carried over 351	

Two graduate students have been appointed to professorships—William Duane, 1893, Professor of Physics in the University of Colorado, and A. H. Patterson, 1892, Professor of Physics in the University of Georgia. Mr. G. A. Campbell, 1892, has obtained a position in the research laboratory of the American Bell Telephone Co. Seven graduate students have been occupied during the year upon researches. Three of the number have also acted as assistants in the various laboratory courses. Several of the investigations upon which these students have been engaged have been in progress for two years, and they all promise to yield important results.

Mr. Theodore Lyman and Mr. C. H. Co'pitts, working under the direction of Professor Sabine, have succeeded in opening an important field of research in the measurement of extremely short wave lengths of light. They have obtained photographs of Metallic lines corresponding to wave lengths of about $\frac{1}{180000}$ of an inch in length. The shortest wave length of the vapor of a metal hitherto measured is $\frac{1}{140000}$ of an inch. It is probably that even shorter wave lengths of light can be measured. The results of this investigation show also that quartz absorbs waves shorter than $\frac{1}{140000}$ of an inch. In this respect it acts like the earth's atmosphere, which, therefore,

must prevent our studying even by photographic means, the extreme ultra violet region of the spectrum of the sun and the stars.

It is believed, however, that such very short wave lengths of light have an important bearing upon the subject of electricity and magnetism, and it is more than probable that they are concerned in the phenomena of the X rays. The results of Mr. Lyman and Mr. Colpitts were obtained by exhausting of air the measuring apparatus, the entire measurements being conducted in a vacuum.

Professor Peirce and Dr. R. W. Willson published in the *Proceedings of the American Academy* for 1897-98 a paper on the thermal conductivity of certain poor conductors. This work stands in the first rank of physical investigation whether one regards the mathematical knowledge displayed or the experimental skill involved, and must always be referred to as the standard in the subject treated.

Professor Hall read a paper at the meeting of the American Association held in Cambridge during last August, on the results of his investigation in Heat Conductivity. In connection with Mr. Heywood, a graduate student, he studied the Hall effect in electrolytes; and showed that the results of recent investigators are rendered uncertain by convection currents which are caused in Magnetic fields.

In a paper entitled "Enquiry into the nature of Electrical discharges in air and gases," *Proc. Am. Acad.*, 1897-98, I have shown that ordinary atmospheric air under the stress of very high electromotive force acts like a good conductor. This result is of present interest on account of the endeavors to transmit power through the upper regions of the atmosphere without the use of wires. My apparatus shows that the loss of energy at the generating "station" would be very great. It appeared also from the investigation that electrical charges can produce phosphorescent light similar to that excited by the violet rays of sun light, and also by the X rays. This result is of theoretical importance, and was referred to by Sir William Crookes in his address this year as President of the British Association for the advancement of Science.

It is now ten years since the establishment of the laboratory workshop and other mechanical appliances have made possible extended physical investigations and original work by graduate students. The intellectual work of the laboratory during the past year easily places it, in my opinion, in the first rank of American laboratories; and this result is due to the able and harmonious coöperation of my colleagues, Professor B. O. Peirce, Professor Hall, and Asst. Professor Sabine.

The endowment of the Physical Laboratory is \$75,000. This endowment seems small when one considers the number of instrumental appliances necessary for research, the importance of Physical Science, and the new demands which its remarkable progress creates. The continued fall in the rate of interest makes it desirable that this endowment should be increased to at least \$100,000.

JOHN TROWBRIDGE, *Director.*

THE PSYCHOLOGICAL LABORATORY.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — During the past year the most important improvement in the equipment of the Psychological Laboratory was the division of the largest room into five small rooms. The laboratory occupying the upper story of Dane Hall consists now of eleven rooms, of which one is used chiefly as a lecture room and another only as a reading room; of the remaining nine working rooms three can be used as dark rooms. The additions to the instrumental equipment were only small, since the regular appropriations to the laboratory hardly allowed more than the payment of the current expenses. As the first equipment with apparatus was rather complete, the inability to supplement it much in recent years has so far not stood in the way of the work in the laboratory; but in the near future extensive additions will probably prove unavoidable.

The instruction in experimental psychology has been changed during the last year in several ways. First, a new half-course was added (Phil. 14²), given by Mr. Lough as an advanced practical training course in psychological laboratory work. While Philosophy 14¹ demands from the students, as their first introduction into laboratory work, merely the performance of a prescribed set of simple experiments, taken mostly from the field of sensation and perception, this advanced training course adds a set of small investigations from which no gain for science is expected, but which train the students, mostly undergraduates, to take the attitude of real research work. The new half-course forms thus a bridge between the elementary training course and the original research work of the advanced students (Phil. 20a).

As the laboratory has to furnish also the instruments for the demonstrations and experiments in the psychological lectures, it may be here the right place to mention the change which was introduced last year with regard to the place of these experimental illustrations in the lecture courses. In earlier years the elementary psychology (second half of Phil. 1a) gave the outlines of empirical psychology with rather slight references to experimental work and with rather few demonstrations; the course in advanced psychology (Phil. 2) covered

the same ground with more details, and more experiments. As it appeared desirable, first that the elementary and the advanced courses should not coincide with regard to their substance, secondly that the more detailed study of experiments be transferred to the pure laboratory courses, and thirdly that more room be made for the discussion of the philosophical principles of psychology, we have tried — and it seems with full success — an essential change. The whole empirical psychology is now given in Philosophy 1, the lectures there being illustrated as much as possible with experimental demonstrations, while the advanced psychology (Phil. 2) is confined to an advanced discussion of the fundamental principles of psychology. As Philosophy 1 has been a course of over 300 students, it became necessary to manufacture the instruments on a scale large enough to demonstrate them to a large audience. It has been therefore an important part of the work of the laboratory in the last year to construct apparatus which suits this purpose.

The whole instruction in psychology has thus been in the last year arranged on the following plan: Philosophy 1a¹ (Münsterberg) outlines of empirical psychology, with special emphasis on the experimental side. For those who wanted to go on with the theoretical psychology the next step was Philosophy 2 (Münsterberg) a lecture course on the fundamental conceptions; and finally the Psychological Seminary (Phil. 20b) (James). For those who wanted to go on with experimental psychology, Philosophy 14¹ (Lough) and Philosophy 14² (Lough) were the natural steps forward; and, finally, the research work in the laboratory (Phil. 20a) (Münsterberg and Lough) completed the series. Practically most students who specialize in psychology combine studies in both directions, experimental and theoretical.

The original research work, which forms the most essential part of the activity in the laboratory, was carried out by fourteen graduate students, a number which we could not well accommodate before the above mentioned division of the one large room into the five small rooms was made last spring. Twelve different investigations were carried on; three of them were offered and accepted as theses for the Ph.D. Mr. Lough's doctorate thesis was on "The Intensity of Sensation," Mr. Solomons' on "The Fusion of Touch Sensations." One of the three was by a student of Radcliffe College (Miss E. Puffer) whose thesis on "Symmetry" was examined by the department as if it was for the Harvard Ph.D.; and her work, — the thesis together with the oral examination, — was considered as proving her "unusually well" prepared for the degree.

Among the other investigations, which mostly have to be continued during the present year, the majority belonged to the study of the more complicated mental processes, such as emotion, judgment, time-perception, attention, volition, while the study of the sensations, which constitutes the greatest part of the work in other psychological laboratories, stood here in the background. In the effort to conquer steadily new fields of mental life for experimental treatment the most characteristic feature of the year's laboratory work was perhaps the systematic extension of our methods to the aesthetic processes, such as rhythm in poetry, composition in painting, etc. The publications of the laboratory (Dearborn, Spindler, Solomons, etc.) are continued as "Studies from the Harvard Psychological Laboratory" in the *Psychological Review*.

HUGO MÜNSTERBERG,
Professor of Psychology.

THE OBSERVATORY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — By the death of William Augustus Rogers, the Observatory has lost a staunch friend, who for nearly twenty years was one of its most active and distinguished officers. From 1870 to 1887 nearly all the observations with the meridian circle were made by Professor Rogers, and although afterwards called to another position he still retained charge of the reduction of these observations which was nearly completed at the time of his death. The results fill seven volumes of the *Annals* and complete his great work on the positions of the stars of the ninth magnitude and brighter in the zone $+50^{\circ}$ to $+55^{\circ}$. His observations of a fundamental catalogue of bright stars, including about seven thousand transits, made during the years 1880 to 1883, are still unreduced.

Two important additions to the resources of the Observatory have been received — the sum of twenty thousand dollars by the will of Charlotte Maria Haven, and twenty-five thousand dollars by the will of Eliza Appleton Haven. The income of both these sums may be used for direct purposes connected with Astronomical Science at the University Observatory. The wishes of their brother, Horace Appleton Haven, have thus been remembered for a period of half a century and are now fulfilled. The absence of restrictions greatly increases the value of these unexpected and most welcome gifts. The annual work of the Observatory need not be diminished, as might otherwise have been necessary, from the continued decrease in the rate of interest derived from its invested funds.

The second Conference of astronomers and physicists was held at this Observatory on August 18, 19, and 20. The attendance was large, and ninety-two persons were present who were technically interested in our work. No room in the Observatory was large enough to accommodate the Conference. The meetings were accordingly held in the parlor of the residence. The weak, as well as the strong, points of the Observatory were brought out by these meetings. The main building is inadequate and old, and the instruments are not of the largest size or latest construction. On the other hand, nearly all of the assistants were present, although

thus losing a portion of their summer vacations. Their voluntary aid enabled the work of the Observatory to be shown in a way that would otherwise have been impossible. The value of the Conference to the Observatory was very great. Our work was brought to the personal attention of a large number of the astronomers and physicists of the country. This was especially the case with three members of the Conference, Professors Myers, Snyder, and Du Bois, who were enabled to pass several weeks in Cambridge and to study the work of the Observatory in detail. This opportunity for discussion and consultation with other astronomers proved to be so beneficial that it is hoped it may be repeated. Reports of the Conference will be found in *Science*, and in the *Astrophysical Journal*.

As the organization of the Harvard College Observatory is unlike that of many similar institutions, it may be worth while to describe it. In large observatories it is not unusual to establish a number of departments, each under the entire charge of an astronomer who is often unaided by assistants. The institution thus becomes a series of small observatories under one roof, but in other respects quite independent. The advantages of this plan are, first the education of a group of astronomers of the highest grade, each of whom is enabled to devote his entire energy to his work, and the illness or failure of one in no way diminishes the efficiency of the others. On the other hand, there is often a lack of coöperation, — it is a ship in which all the sailors are captains. It is not clear that better results are thus obtained with a given expenditure of money, than if assistance was given to amateurs who had displayed especial skill in their work, either by furnishing them with suitable instruments, or means for publication. The power of the whole is not greater than that of as many detached small observatories.

The Director of the Harvard College Observatory takes immediate charge of the various departments, in many cases making a daily inspection and planning the work in detail. Many of the assistants are skilful only in their own particular work, but are nevertheless capable of doing as much and as good routine work as astronomers who would receive much larger salaries. Three or four times as many assistants can thus be employed, and the work done correspondingly increased for a given expenditure. This method does not offer the same opportunity for the advancement of individuals, and too much depends upon a single person — the Director. The advantages for coöperation, or for undertaking large pieces of work are very great, and the latter is especially marked since this Observatory maintains stations in the southern as well as in the northern

hemisphere. The same plan of work can thus be carried out for all stars from the north to the south pole, and the experience gained at one station greatly aids the work at the others. Moreover, uniformity of plan of publication is secured, and on special occasions, as during eclipses, meteoric showers, etc., large numbers of skilled observers are available on short notice. Each method has its advantages, and it seems advisable that this method should continue to be followed in one large Observatory.

Considering the various departments in the order in which they are discussed in this report, we have the following general division of work : —

The observations with the 15-inch Equatorial telescope are made and reduced by Mr. O. C. Wendell, assisted by Mr. R. H. Frost and Mr. F. C. Spencer. Mr. W. M. Reed observes with the 6-inch Equatorial. The meridian circle is in charge of Professor Arthur Searle, aided by Mr. J. A. Dunne, Miss L. L. Hodgdon, Mrs. I. W. Eddy, Miss L. Winlock, and Mrs. P. F. Bonesteel. Various determinations of stellar positions have been made by Miss A. Winlock, assisted by Miss S. C. Bond. The observations with the meridian photometer have been made by the Director and recorded by Messrs. R. S. Davidson and E. P. Fleming. Mrs. W. P. Fleming has charge of the Henry Draper Memorial, together with the other work done in the Astrophotographic building. She has been assisted by Miss L. D. Wells, Miss M. C. Stevens, Miss E. F. Gill, Miss E. F. Leland, Miss H. I. Stevens, Miss I. E. Woods, Miss E. G. Wolffe, Miss A. J. Cannon and Miss S. E. Breslin in the discussion of the photographs, and by Miss F. Cushman, aided by Miss A. J. McKay and Miss M. A. Gill, in the reduction of the observations made with the meridian photometer. The photographs have been taken by Mr. E. S. King, assisted by Messrs. E. F. Waite and H. R. Colson. Assistant Professor W. H. Pickering has continued the preparation for publication of the observations made at Arequipa under his direction. Associate Professor Solon I. Bailey has remained in charge of the Arequipa Station. Since his return to Cambridge, Mr. W. B. Clymer, Dr. De Lisle Stewart, and Sr. J. E. Muniz have carried on the observations at Arequipa. The meteorological observations at Mollendo have been made by Mr. Turner, those at La Joya by Sr. Galindo, those at Cuzco by Mr. Krämer, and those at Echarati by Sr. Pimentel. Sr. Ayulo has undertaken the trips to El Misti, changing the record sheets there, and also at Alto de los Huesos and Mt. Blanc Stations. Mr. Rotch's assistants at the Blue Hill Observatory are Messrs. H. H. Clayton, S. P. Fergusson, and A. E.

Sweetland. Mr. H. W. Winkley has charge of the library under the supervision of Mr. J. R. Edmands. Mr. Gerrish, assisted by Mr. Attwill, has charge of the laboratory, workshop, and general correspondence.

OBSERVATORY INSTRUMENTS.

East Equatorial. — The observations with this instrument have been made by Mr. O. C. Wendell and have been of the same general character as in previous years. About twenty-five thousand photometric light comparisons have been made, largely with the new polarizing photometer with achromatic prisms described in the annual report for 1895. With this instrument, 1,424 photometric comparisons were made of W Delphini, 2,796 of U Pegasi, 2,680 of R Canis Majoris, 1,520 of S Cancri, 1,136 of Y Cygni, 704 of SS Cygni, 624 of S Antliae, 580 of T Andromedae, 568 of U Vulpeculae, 480 of Y Aquilae, 160 of ST Cygni, and 668 of Planet DQ. 4,436 photometric comparisons have been made of stars between the tenth and fourteenth magnitudes, used as comparison stars for variables of long period. In addition to the above, 2,004 comparisons were made of β Lyrae, 864 of α Ceti, 264 of U Camelopardali, and 600 of the relative brightness of the components of double stars, with a second photometer adapted to the comparison of stars too near together to be measured with the first instrument. The same instrument has been used in the photometric measurement of Jupiter's satellites while undergoing eclipse. 23 of these eclipses have been observed, making the total number 660. The systematic observation of variable stars of long period, throughout all their changes, and the reduction of the results to the scale of the meridian photometer have been continued. A few estimates have been made by the method of Argelander, generally when stars were too faint to be observed with smaller instruments. 573 estimates of the intervals between faint comparison stars have also been made.

Similar observations of variables and comparison stars have been made with the West Equatorial. With it 527 estimates of variables have been made by Mr. Reed, and 362 by Miss Cannon. Mr. Reed has also made 362 estimates of comparison stars for variables. 403 estimates have been made by Mr. Waite, of SS Cygni, S Cephei, and U Orionis. 1,105 estimates of variables have been made by Mr. F. E. Seagrave of Providence, principally with his 8-inch telescope, and have been communicated to this Observatory. In addition to the above, 624 comparisons of β with α Persei have been made by Mr. Wendell, with a photometer mounted as a horizontal telescope.

In observing variables, the same sequences of comparison stars are used by all the observers and the same magnitudes are used in the reductions. The observations of seventeen variables north of $+50^\circ$ have been continued. The observations of these variables up to the present time, together with the photometric values of the comparison stars, have been reduced and will shortly be published. The selection of the comparison stars for 60 other variables is nearly completed, the observations for determining their photometric values nearly finished, and the reduction is in progress. Observations of these variables are regularly made and the scheme is being extended to other variables. The coöperation of other astronomers is invited in this work, especially in following the variables when too faint for observation with our 15-inch telescope. Charts of the regions, and lists of comparison stars with their photometric magnitudes, will be furnished to any astronomers who desire to take part in this work.

Meridian Circle. — The reduction of the observations of fundamental stars, made during the years 1880 to 1883 inclusive by Professor Rogers, was not complete at the time of his death, already mentioned in this report. The papers relating to this work have been collected and are now under examination with the view of forming plans for the completion of the reduction.

The revision of the southern zone, between the declinations $-9^\circ 50'$ and $-14^\circ 10'$, by additional observations of stars, the previous observations of which were insufficient or discordant, has been completed during the year. It is not now supposed that any further observations of this zone will be advisable, although the question cannot be absolutely decided until further progress has been made with the reductions. The number of dates on which observations were obtained was 19; the total number of observations was 699, of which 109 were of fundamental stars, 37 of circumpolar stars, and 553 of zone stars. The reduction of the observations made in recent years, and the correction of errors of computation in the previous work, has made satisfactory progress. As mentioned in the last report, provisional mean places for all stars observed before December 30, 1895, are now available for use. The recent publication of the corrections adopted by Professor Auwers for the places of the fundamental stars of the southern zones will permit the completion of all the reductions as rapidly as they can be reached.

Meridian Photometer. — Observations with the meridian photometer have been made by the Director on 152 nights. The total number of photometric settings is 73,684, making a total of 473,216

since the return of the instrument from Peru in 1892. The work on the northern stars planned for this instrument is now completed, and includes, first, the reobservation on three nights of all the stars in the Harvard Photometry, that is, those of the sixth magnitude and brighter north of -30° . Secondly, the observation on two nights of all additional stars of the magnitude 7.5 and brighter, north of -40° , excepting some of those contained in Volume XXIV. Thirdly, comparison stars brighter than the tenth magnitude for 81 variable stars of long period. The total number of these comparison stars is 826. Fourthly, the determination of the light curves of variable stars of short period not in clusters and north of -40° . Numerous measures have also been made of Uranus, Neptune, and the four brighter asteroids, Ceres, Pallas, Juno, and Vesta, also of various stars of the Algol type, and of other objects.

This work being completed, it is proposed to send the photometer to Arequipa next spring, where a series of measures of the southern stars will be made by Professor Bailey. All stars of the magnitude 7.0 and brighter, and south of -30° , will be observed, thus again determining the magnitudes of the stars in the Southern Harvard Photometry.

Observations with the 12-inch telescope mounted horizontally have been begun by the Director in order to determine the magnitudes of the fainter stars. The star to be measured when on the meridian is reflected into the field by means of a mirror and is then compared with an artificial star formed by allowing the flame of a Welsbach burner to shine through a minute hole. The observation is made by varying the light of the artificial star by means of a wedge of shade glass until it is equal to the real star. By measuring, at short intervals, adjacent stars whose light has already been determined by the meridian photometer the results are reduced to the scale of that instrument.

HENRY DRAPER MEMORIAL.

The number of photographs taken with the 8-inch Draper telescope is 2,192. The examination, by Mrs. Fleming, of the spectra contained on these plates, and of those taken with the Bruce and Bache telescopes, has led to the discovery of twelve new variable stars, six of which were detected from the presence of bright hydrogen lines in their spectra. Nine stars have been found to have spectra of the fourth type, seventeen to have spectra of the fifth type, eight stars have spectra in which the hydrogen line $H\beta$ is bright, five in which the spectrum is peculiar, and ten gaseous nebulae. The hydrogen

lines have been shown to be bright in the spectra of the known variables, V Tauri, U Cancri, and T Capricorni. The spectrum of a meteor, showing five bright lines, was found on one of these plates. The star A. G. C. 20263, β Lupi, has been found to be a spectroscopic binary. A variable star has also been found by Miss L. D. Wells. The detailed study of the spectra of the northern stars, published in Vol. XXVIII, Part I, is being extended to the southern stars by Miss A. J. Cannon. This study has led to the discovery that the bright hydrogen lines vary in the spectra of the stars A. G. C. 9181 and 14145. A photograph of the spectrum of the aurora, showing four bright lines, has been taken by Mr. King. Several photographs have been obtained of that remarkable object, Witt's Planet DQ.

The number of photographs taken with the 11-inch Draper telescope is 878. Numerous plates have been obtained of Jupiter's satellites while undergoing eclipse, and of four variable stars of the Algol type, U Cephei, S Cancri, U Coronae, and W Delphini. By giving exposures of a second or less with the apparatus used in taking these plates two excellent photographs have been obtained of stars undergoing occultation, one being a disappearance, the other a reappearance. A photograph of α Canis Majoris was also obtained in the middle of the day under conditions which render it probable that bright stars could be usefully photographed in the day-time in a transit instrument, or while undergoing occultation. A modification of the same instrument, in which the exposures are long instead of short, serves to detect all variables of short period in a large portion of the sky. It is proposed to photograph the entire sky in this way, and a Cooke Anastigmatic lens has already been procured and the work begun upon the northern stars. 431 photographs, each extending over three hours, have been obtained with the transit photometer.

An instrument has been constructed by which prismatic spectra can be converted into normal spectra, or any other desired change of scale effected. Similar results have been obtained by Mr. King, by a more convenient but less accurate method; enlargements are made, inclining the plates by an amount computed by the theory of transversals.

Photographic trails of stars in the vicinity of the north pole have been taken on 179 nights with the 15-inch Draper reflector. Exposures of two, one, and two minutes are made automatically every hour throughout the night. Photographs are obtained of about 20 stars within half a degree of the pole. It is believed that the material is thus furnished for an accurate determination of the constants of

aberration, nutation, and precession. Measures of the precise positions of about 500 stars within 30' of the north pole have been made by Miss E. F. Leland.

BOYDEN DEPARTMENT.

During the greater portion of the year Professor Bailey has been in Cambridge. In his absence the work of the Station in Arequipa has been carried on by Messrs. Clymer, Stewart, and Muñiz. The number of photographs taken with the 13-inch Boyden telescope is 464, consisting of charts of clusters, charts for the detection of parallax, and spectra of the brighter stars. The systematic examination of stars south of -30° , of magnitudes 6.3 to 7.0, for the detection of new close doubles has been continued by Mr. Clymer, who has also observed visually southern variables once a month when possible.

1,486 plates have been made with the 8-inch Bache telescope. These are chiefly charts of ten minutes exposure designed to cover the southern sky each year. A small number of charts were made of the Magellanic clouds and other interesting regions with exposures of from four to six hours. A few spectrum plates were also obtained.

The work of examining all close clusters for the detection of variable stars has been extended. More than twenty clusters have now been systematically examined by Professor Bailey, including 19,050 stars of which 509 are variable. The most striking results have been found in the four clusters ω Centauri, Messier 3, Messier 5, and Messier 15. Professor Bailey has given special attention, however, to the discussion of the periods and light curves of the 125 variables in the cluster ω Centauri. The preparation of this material for publication is now well advanced.

The meteorological stations have been maintained as in previous years, except that the coast station at Mejia has been again placed in the adjacent town of Mollendo, and that in Cuzco has been moved to a better site. These changes became necessary from the difficulty of obtaining reliable observers continuously in one place. A station, omitted in the last annual report, is also maintained on the eastern side of the Andes, at Echarati, at an elevation of about 3,000 feet. On the summit of El Misti observations have been made and records obtained as regularly as possible. The new meteorograph has not proved successful, but records have been obtained by the Richard instruments during a large part of the year.

An accurate determination of the position of the Station has been made by Professor Upton. Telegraphic signals were exchanged with Arica, with the resulting longitude $4^{\circ} 46' 11''.71 \pm 0''.032$. The latitude was found to be $-16^{\circ} 22' 28''.0 \pm 0''.19$.

THE BRUCE PHOTOGRAPHIC TELESCOPE.

The work of this instrument during the past year has been successfully carried on by Dr. De Lisle Stewart. In some cases the images on charts having exposures of three or four hours show no deviation from the circular form. For long exposures, as heretofore, the telescope has been guided by following stars visually in two eye-pieces, placed on opposite sides of the plate in the field of the main telescope. For short exposures, however, of ten to fifteen minutes, it has been found more satisfactory to make use of the 11-inch finder, using an eye-piece attached to the frame which carries the plate holder, so that the guiding is done by the regular slow-motion screws.

During the year, 589 plates have been obtained. Of these, 275 are charts with exposures of 10 minutes; 200, charts with exposures of 60 minutes; 20, spectrum plates with exposures of 60 minutes or more; 12, charts with exposures of from 180 to 300 minutes; and plates of planets, comets, etc.

Professor Turner, of Oxford, courteously offered to determine the distortion of the Bruce telescope. Contact prints of some of the plates were sent to him, and from measures of them he concludes that with this instrument "stars are photographed at Harvard over a region at least $5^{\circ} \times 5^{\circ}$ with an optical distortion which is quite small and easily manageable."

BLUE HILL OBSERVATORY.

The work of the Observatory was performed by three assistants under the direction, and at the expense, of Mr. Rotch. The printing of the usual observations for 1897 in Volume XLII, Part II, of the *Annals* has been delayed in order to include the measurements of clouds made during the international "cloud-year" and now being reduced. Apart from the routine observations, the chief work was the investigation of the upper air from automatic records obtained with kites, which was successfully continued and aided by a grant of money from the Hodgkins Fund of the Smithsonian Institution. The maximum heights reached were 11,085 feet above Blue Hill on October 15, 1897, and 11,445 feet on August 26, 1898, when baro-

metric pressure, air temperature, relative humidity, and wind velocity were recorded. The average height of the flights during the past summer was nearly a mile and a half. To give promptly to the public and to specialists information of interest three "Bulletins" have been issued since January. The two first gave the results of some remarkable kite-flights and the last described the very severe storm of January 31—February 1, 1898.

MISCELLANEOUS.

Library. — The library of the Observatory has been increased during the year by the addition of 400 volumes and 319 pamphlets. The total numbers of volumes and pamphlets in the library on October 1, 1898, were 9,035 and 12,787 respectively. The total number of pamphlets on October 1, 1897, was 12,468 instead of 12,992 as given in the last report. Especial efforts are being made to render the meteorological, as well as the astronomical, collections of publications here, and at Arequipa, as complete as possible.

Telegraphic Announcements. — New and improved methods for the distribution of telegraphic announcements have been introduced during the year. A system of neostyle bulletins has been established by which translated copies of telegrams are sent by first-class mail to such institutions and individuals as can make use of them. Points near Boston are reached in this manner almost as promptly as by telegraph, and without expense to the recipients, the entire cost being defrayed by the Observatory. Announcements will be distributed by telegraph as heretofore to such subscribers as wish to pay for them. The cost of all cable messages sent to Kiel for distribution in Europe has been borne by the Observatory as in past years, as has also that of a large number of domestic telegrams. Astronomers are requested to send to this Observatory announcements of their discoveries for transmission to the observatories of Europe and America, as heretofore. To secure prompt attention it is requested that all telegrams be addressed "Harvard College Observatory, Cambridge, Mass." All correspondence relating to telegrams and announcements should be addressed to the Director.

The November Meteors. — It is expected that the great shower of meteors seen in 1833 and 1866 will again occur in 1899. As this time approaches preliminary observations are being made. On November 18, 1897, two stations were occupied, one at this Observatory, the other at the Blue Hill Observatory twelve miles south.

Visual and photographic observations were made at both stations. Ten officers of the Observatory, assisted by twelve Harvard students, took part in this work and observed 91 meteors at Cambridge and 47 at Blue Hill. More extensive preparations have been made for the observations this year. A series of stations has been selected, encircling the Earth, at which it is hoped counts of the number of meteors seen will be made during the entire time that the Earth is passing through the meteor stream. Professor Upton of Brown University, with a party of students has undertaken to make visual observations, in conjunction with those made here to determine the parallax. Mr. Seagrave of Providence also expects to keep a careful watch on the radiant point with his 8-inch telescope, thus repeating his work of last year. Photographs will be taken simultaneously at Tufts College, two miles north of Cambridge, and here. A large number of photographic instruments will be in use. Next year it is hoped that this work may be still further extended.

Publications. — Pages 141 to 228 of Volume XXIII, Part II, of the *Annals* are now in print, and contain a comparison of the magnitudes in Volume XXIV with those of the *Durchmusterung*, of the *Uranometria Argentina*, and of the *Harvard Photometry*. A complete reduction is also given of the observations of the light of the stars by Sir William Herschel, from which it appears that a century ago he determined the light of nearly three thousand stars with an accuracy closely approaching that of our best modern catalogues. Pages 117 to 206 of Volume XXXII, Part II, are in print, and contain visual observations of the Moon and planets by Professor W. H. Pickering. Pages 1 to 93 of Volume XXXIII are in print, and contain photometric observations of asteroids, a study of *Gegenschein*, and a reduction to the photometric scale of the observations of variable stars of long period by Argelander and Schönfeld. Volume XLI, No. V, containing a discussion of the Meteoric Shower of November 13, 1897, and Volume XLII, Part I, Observations made at Blue Hill in 1896, have been printed and distributed.

The following sixteen circulars have been issued this year: —

20. Spectrum of a Meteor. November 8, 1897.
21. A Variable Bright Hydrogen Line. A new Spectroscopic Binary. January 1, 1898.
22. Photographic Magnitudes. January 4, 1898.
23. The Variable Star U Pegasi. January 14, 1898.
24. Variable Star Clusters. New Variable Stars. January 31, 1898.
25. Polarizing Photometer. February 8, 1898.

26. Occultation of 26 Arietis observed photographically. March 3, 1898.
27. Comparison Stars for Variables. Miscellaneous Notes. March 7, 1898.
28. Photographic Spectrum of the Aurora. March 23, 1898.
29. Variable Stars of Short Period. May 21, 1898.
30. The Supposed Variable Star Y Aquilae. May 25, 1898.
31. The November Meteors. May 30, 1898.
32. Stars having Peculiar Spectra. Stars resembling γ Puppis. June 21, 1898.
33. Variable Stars in Clusters. September 17, 1898.
34. Witts' Planet DQ. September 30, 1898.

On the completion of the fiftieth of these circulars it is proposed to issue a title page and index so that they may be bound and preserved for reference in libraries and observatories. Extra copies have been printed so that a general distribution of them may then be made.

The following minor publications have also appeared during the year : —

Fifty-second Annual Report of the Director of the Astronomical Observatory of Harvard College. Cambridge, 1897.

The Algol Variable, + 17° 4367. W Delphini. *Astrophysical Journal*, vii, 23.

EDWARD C. PICKERING, *Director*.

THE MUSEUM OF COMPARATIVE ZOÖLOGY.

TO THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE:—

During the past year the usual courses of instruction have been given at the Museum in the Natural History Laboratories. Those in Zoölogy were given by Professor Mark, Doctors Davenport, Parker, and Castle, assisted in the Laboratory work by Messrs. R. W. Hall, and F. C. Waite. Professors Shaler and Davis, together with Messrs. Robert T. Jackson, R. DeCourcy Ward, T. A. Jaggar, Jr., and J. B. Woodworth, gave courses of instruction in Geology, Palaeontology, Physical Geography, and Meteorology. The Assistants in these departments were Messrs. C. H. White, J. E. Woodman, and J. M. Boutwell.

The Newport Marine Laboratory was not opened this year to students of the Zoölogical Department as heretofore. The advanced students have found the necessary facilities at the Laboratory of the United States Fish Commission at Wood's Hole, to which students properly qualified have been admitted by the Hon. George M. Bowers, U. S. Fish Commissioner. The income of the Virginia Barret Gibbs Scholarship has been assigned according to the terms of the gift, and the income of the Humboldt Fund has been applied to assisting students working at the Wood's Hole Laboratory.

Professor Faxon reports that the principal additions to his department consist of a large and very complete collection of North American land and fresh-water shells (over 20,000 specimens), presented to the Museum by Dr. R. Ellsworth Call of Lawrence, Indiana, and of a very beautiful collection of marine shells from the Straits of Malacca, presented to the Museum through Professor Goodale.

Messrs. Henshaw, Garman, and Brewster report the collections under their care in excellent condition. The additions to their departments are enumerated in their reports. The departments in charge of Dr. Woodworth and Dr. Mayer need no special notice, as during the greater part of the year these two Assistants were absent with me in Fiji. Dr. Woodworth has left for Samoa to collect additional material for his Bololo paper, and Dr. Mayer has spent the greater part of the summer collecting Acalephs in the Tortugas and along the east coast of the United States.

To Professor Hyatt, to Mr. William Brewster, as well as to

Dr. R. T. Jackson, the Museum is indebted for the care of their respective departments.

The Exhibition Rooms have remained much as they were at the time of the last Report. A stand-pipe and hose have been placed in the Museum building in order to guard each floor against fire. The tables used for heating in the different Laboratories have been specially protected against the spreading of fire.

Specimens have been sent to Dr. Dendy, to Mr. H. A. Pillsbury, and to the Smithsonian Institution for examination, and a lot of Galapagos Turtles to the Hon. Walter Rothschild. A number of specialists have consulted the Entomological Department, and Mr. G. N. Calkins has examined our collection of Hydroids from the Pacific Coast of the United States.

In addition to the gifts specified in the different Reports, I may mention a collection of Fossil Medusae from the Cambrian of Alabama, presented by the United States Geological Survey. Fossils from Griffin Landing, Savannah River, presented by Mr. C. B. Moore of Philadelphia. The collections made during my expedition to Fiji consist of Land Shells, Reptiles, Insects, Corals, and pelagic animals. An interesting fossil Egg (*Struthiolithus*) was purchased for the Museum through Mr. Eastman, and forms the subject of one of the Bulletins issued during the past year.

The Museum has, as in former years, provided the room for a great part of the instruction in Geology and Zoölogy given to the students of Radcliffe College, as well as to the large classes in the Summer School of Geology.

It seems only reasonable that some provision should be made for the use of the rooms so occupied, as the Museum has no source of income to meet the ever increasing demands made upon it by the policy of the University in granting the facilities of the Museum to persons who in no way promote its material welfare.

The increase of the Library by purchase, gift, and exchange has been somewhat larger than in former years. The Library now numbers nearly 82,000 volumes. Among the valuable additions to it I may mention some volumes of pamphlets on Land Shells, collected by Mr. William G. Binney, and a number of volumes from the library of the late Colonel Theodore Lyman.

The Reports on the "Albatross" Expedition of 1891 are progressing favorably. Mr. Westergren has completed the Plates to accompany the Report on Fishes, and Mr. Garman has the text well advanced. The Report on the Ophiuridae, by Messrs. Lütken and Mortensen, is in the press.

The Report on the Acalephs, by Dr. Otto Maas, has been published as No. 1 of Vol. XXIII. of the Memoirs. Of the Bulletin, Vol. XXXI. has been published during the past year, and two numbers of Vol. XXIII., and seven numbers of Vol. XXXII. They contain six numbers from the Zoölogical Laboratory in charge of Dr. Mark, two papers by Mr. Eastman, and two by Dr. Woodworth, the Isopods of the "Albatross" Expedition, by Dr. Hansen, a Preliminary Report on the Echini of the same Expedition, by myself, as well as papers on Dactylometra and on Australian Medusae in conjunction with Dr. A. G. Mayer, and a Report on my Expedition to the Great Barrier Reef of Australia.

In connection with the "Blake" explorations, I have published an interesting paper by Professor R. T. Hill, on the Geological History of the Isthmus of Panama; and Professor Bouvier and Dr. Fischer have completed a memoir on the Pleurotomaria dredged by the "Hassler" off Barbados.

The Corporation has continued an appropriation of four hundred dollars to assist in publishing some of the theses from the Zoölogical Laboratory.

I spent the past winter in Fiji, accompanied by Dr. Woodworth and Dr. Mayer, in studying the Coral Reefs. The Expedition was most successful, the weather admirable, and an immense amount of material relating to coral reefs was collected. A preliminary account of the expedition has been published in the American Journal of Science for February and for July of this year. I hope during the early part of the coming year to publish the full Report of the Expedition, the text of which is nearly completed, while the accompanying plates are in the hands of the lithographers. In order to supply information which we could not obtain in our limited time I have been able, through the kindness of Professor David of Sydney, to engage Mr. E. C. Andrews to visit Fiji, and explore more in detail the elevated limestones which play so important a part in the history of the coral reefs of that group. Mr. Andrews reached Fiji in July, and has been at work there during the past summer.

I am specially indebted for facilities and assistance to Sir William C. Van Horne, and Mr. T. G. Shaughnessy of the Canadian Pacific Railroad, to Sir George O'Brien, Governor of Fiji, to the Hon. J. Stewart, Colonial Secretary, to Hon. W. L. Allardyce, Assistant Native Commissioner, to Mr. Berry, to Captain Calder, and to a number of friends in Fiji, to whom a great part of the success of our trip is due.

This will be the last Museum Report which I shall have the honor to make. My resignation both as Curator and Director of the Museum, to take effect at the close of the present academic year, has been accepted by the Faculty of the Museum, and by the Corporation. This resignation was accompanied by certain conditions which will be found appended.

The Faculty of the Museum has appointed Professor George L. Goodale and Dr. Henry P. Walcott as a Committee to take charge of the Museum, and Dr. W. McM. Woodworth has been appointed Assistant in charge.

Although my administrative connection with the Museum ceases now, I look forward to its future with no little concern. When the more intimate relation between the Museum and the University (dating back to 1876) was established, it was hoped that the new arrangement might prove advantageous to both institutions. So far as the Museum is concerned, this hope has not been fulfilled. While the divisions of Zoölogy and Geology in the University have been greatly expanded by the facilities afforded them by the Museum, the latter has gained no corresponding benefit from the University, nor has it received from the friends and graduates of Harvard the aid and support which might have been expected as a result of this mutual arrangement.

The funds available for carrying on the Museum and for promoting research are meagre in the extreme, and there are literally no means existing for the publication of the original work presented from the various laboratories. The slender thread which connected the Museum with the teaching departments at the time of its incorporation with the University is practically severed, the administration of the Museum being no longer in any way concerned with instruction, as was originally included in the articles of agreement between the University and the Museum. Under existing conditions the University Museum cannot hope to hold its own with similar institutions which have grown up in late years. The Natural History Museums in New York and in Chicago, connected as they are with municipalities which deal with them in a most generous and intelligent manner, will leave far behind a University Museum depending upon resources which grow annually less with a painful regularity.

ALEXANDER AGASSIZ.

CAMBRIDGE, September 1, 1898.

Publications of the Museum during 1897-98:—

Of the Bulletin:—

Vol. XXVIII. (Geological Series, Vol. III.)

No. 4. A Visit to the Great Barrier Reef of Australia in the Steamer "Croydon," during April and May, 1896. By A. Agassiz. pp. 56. 42 Plates. April, 1898.

No. 5. The Geological History of the Isthmus of Panama and Portions of Costa Rica. Based upon a Reconnaissance made for A. Agassiz. By R. T. Hill. pp. 138. 19 Plates. June, 1898.

[Vol. XXVIII. is complete.]

Vol. XXXI. (October, 1897—May, 1898) contains:—

No. 1. Contributions from the Zoölogical Laboratory. LXXXIII. Contributions to the Morphology of the Turbellaria. II. On some Turbellaria from Illinois. By W. McM. Woodworth. pp. 16. 1 Plate. October, 1897.

No. 2. On the Relations of certain Plates in the Dinichthyids, with Descriptions of New Species. By C. R. Eastman. pp. 28. 5 Plates. October, 1897.

No. 3. Contributions from the Zoölogical Laboratory. LXXXIV. Trichonympha, and other Parasites of *Termes flavipes*. By J. F. Porter. pp. 24. 6 Plates. October, 1897.

No. 4. Contributions from the Zoölogical Laboratory. LXXXV. Variations in the Brachial and Lumbo-Sacral Plexi of *Necturus maculosus Rafinesque*. By F. C. Waite. pp. 24. 2 Plates. November, 1897.

No. 5. Reports on the Dredging Operations in the "Albatross" in 1891. XXII. The Isopoda. By H. J. Hansen. pp. 38. 6 Plates and Chart. December, 1897.

No. 6. Contributions from the Zoölogical Laboratory. LXXXVII. The Thoracic Derivatives in the Postcardinal Veins in Swine. By G. H. Parker and C. H. Tozier. pp. 14. March, 1898.

No. 7. Contributions from the Zoölogical Laboratory. LXXXIX. The Segmentation of the Nervous System in *Squalus acanthias*. A contribution to the Morphology of the Vertebrate Head. By H. V. Neal. pp. 54. 9 Plates. May, 1898.

[Vol. XXXI. is complete.]

Vol. XXXII. contains:—

No. 1. Studies from the Newport Marine Laboratory. XLI. On *Dactylometra*. By A. Agassiz and A. G. Mayer. pp. 12. 13 Plates. April, 1898.

No. 2. On some Medusae from Australia. By A. Agassiz and A. G. Mayer. pp. 8. 3 Plates. April, 1898.

No. 3. The Gordiacea of Certain American Collections. With particular Reference to the North American Fauna. By T. H. Montgomery, Jr. pp. 40. 15 Plates. April, 1898.

No. 4. Some Planarians from the Great Barrier Reef of Australia. By W. McM. Woodworth. pp. 6. 1 Plate. April, 1898.

No. 5. Reports on the Dredging Operations off the West Coast of Central America to the Galapagos, etc., by the U. S. Fish Commission Steamer "Albatross." XXIII. Preliminary Report on the Echini. By A. Agassiz. pp. 18. 13 Plates and Chart. June, 1898.

No. 6. The Nervous System of *Nereis virens* Sars. A study in Comparative Neurology. By J. J. Hamaker. pp. 48. 5 Plates. July, 1898.

No. 7. On Remains of *Struthiolithus Chersonensis* from Northern China, with Remarks on the Distribution of Struthious Birds. By C. R. Eastman. pp. 17. 1 Plate. July, 1898.

No. 8. Reports on an Exploration off the West Coasts of Mexico, Central and South America, and off the Galapagos Islands, in charge of Alexander Agassiz, by the U. S. Fish Commission Steamer "Albatross," during 1891, Lieut. Commander Z. L. Tanner, U. S. N., Commanding. XXIV. Preliminary Report on *Branchiocarianthus urceolus*, a New Type of Actinian, by E. L. Mark. pp. 8. 3 Plates. August, 1898.

[Vol. XXXII. to be continued.]

Of the Memoirs: —

Vol. XXIII. contains: —

No. 1. Reports on an Exploration off the West Coasts of Mexico, Central and South America, and off the Galapagos Islands, in charge of Alexander Agassiz, by the U. S. Fish Commission Steamer "Albatross," during 1891, Lieut. Commander Z. L. Tanner, U. S. N., Commanding. XXI. Die Medusen. Von Otto Maas. pp. 92. 15 Plates. September, 1897.

[Vol. XXIII. to be continued.]

THE PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, —In presenting the thirty-second report on the Museum and the various activities connected with it, the Curator has the pleasure of stating that the friends of the Museum have continued to manifest an active interest in its welfare. The results of this interest are to be seen in the many valuable specimens which have been added to the Museum, in the final arrangement and labelling of many of the collections, and in the publications that have been issued.

The explorations by Mr. Gordon in the Uloa valley and in the Caves of Copan were briefly mentioned in the last report. After his return in September, 1897, Mr. Gordon was employed to prepare reports on the expeditions of 1896 and 1897. These reports have been issued under one cover as numbers 4 and 5 of the quarto *Memoirs of the Museum*. The two maps, twelve plates, and thirty-seven figures in the text, are from drawings or photographs by Mr. Gordon. The colored plate is by the color-photographic process by the Tabor-Prang company of Boston. It is a decidedly successful experiment in this method of illustration where the reproduction of colors is essential.

As heretofore, in all matters relating to the Central American explorations, the Museum is indebted to Mr. Charles P. Bowditch (H. 1863) for his efforts in interesting friends in archaeological researches in Mexico and Central America. It has long been the hope of archaeologists that some knowledge of the Maya hieroglyphs might still be lingering among the native peoples of Central America from whom a clue to the translation of these glyphs might be obtained. For several years, Mr. Bowditch has entertained the belief that such a clue might possibly be found among the little known and isolated Lacandones of Guatemala. To this end the services of Mr. Teobert Maler have been secured to the Museum, and he is to visit the Lacandon country for this purpose. Mr. Maler is well known for his archaeological researches in Yucatan and Guatemala, and his preparation for this important research is certainly exceptional.

Mr. Willoughby's report on his explorations in Maine, carried on under the auspices of the Museum, has been published as No. 6 of

the Archaeological and Ethnological Papers of the Museum (octavo) under the title, "Prehistoric Burial-places in Maine." The paper is extensively illustrated from drawings and photographs by the author. The collections described are on exhibition in the Museum. This material was exhibited at the World's Columbian Exposition, partly in the Anthropological Building as illustrating "Methods of Archaeological Research by the Peabody Museum," and partly in the Liberal Arts Building in connection with the Harvard University exhibit. The publication of this paper is due to the generosity of Mr. Clarence B. Moore of the class of 1873. Mr. Moore has also contributed toward the salary of an assistant; and he has in other ways shown his continued interest in the Museum.

Mr. Stephen Salisbury (H. 1856) has for many years taken a special interest in the people and the archaeology of Yucatan, and it was through his influence that Mr. Edward H. Thompson was led to his archaeological researches in that country. For several years Mr. Thompson's work was reported to this Museum; then he was employed as one of the assistants in the Department of Ethnology of the World's Fair; and after that he was engaged for special research by the Field Columbian Museum. Having closed his work for the Chicago Museum he is now, thanks to Mr. Salisbury, to resume his connection with this Museum. No archaeologist has a wider knowledge of the ruins of the prehistoric cities of Yucatan, than Mr. Thompson, and no one is more desirous of solving the problems which they suggest. The future researches of Mr. Thompson in this field will unquestionably add much to the knowledge of this ancient American civilization.

Although there has been no special exploration from which large accessions might have been received as in former years, yet many valuable additions, particularly of an ethnological character, have been received by gift.

Dr. Alexander Agassiz (H. 1855), while engaged in scientific researches in connection with the formation of coral reefs in the Pacific, most kindly secured and presented to the Museum a large collection of objects illustrating the customs of the native tribes with which he came in contact during his expedition. Among these specimens is a canoe 27 feet in length, from the Solomon Islands. This canoe is believed to be the last of its type and Dr. Agassiz took special care to have it shipped to the Museum without injury. It is now on exhibition, and is a most valuable addition. Two of the singular mast-heads of canoes of the Fijians, one of which is from a large and ancient canoe, are rare and important objects. Two pieces of

kapa cloth from Fiji are remarkable for their great size as well as for the perfection of their manufacture, each being a single piece free from patching. One of these cloths or "bridal carpets" is 158 feet long and 4 feet 5 inches wide; the other is 136 feet 3 inches long and 9 feet 11 inches wide. Besides these exceptional pieces of kapa cloth, there are several garments, curtains, and small mats of the same material. The collection also includes pottery vessels, palm-leaf thatch used on houses, woven mats, fans and baskets of palm leaf, kava bowls, and other wooden bowls, dishes and drinking cups, kapa beaters of several patterns, wooden pillows, fly brushes, war clubs, spears, bows and arrows, paddles, adze blades and dance girdles, all from Fiji; also several large adze blades of stone and a drum from New Guinea. These specimens are all on exhibition in the Warren Gallery, which was opened to visitors during the past summer.

Dr. H. K. Faulkner (H. Med. Sch. 1885) and Dr. W. E. Faulkner (H. 1887, H. Med. Sch. 1891) of Keene, New Hampshire, have made an important addition to the African exhibit in the Museum. This ethnological material was obtained by a missionary, principally from among the Congo tribes, and was purchased by the Faulkner brothers, who have thus kindly remembered the University. It is a representative collection illustrating the native manufactures of the people, — their garments of grass cloth; their ornaments made of brass, for the neck, arms, and ankles; hair pins and combs; basketry, burden straps, pottery vessels, tobacco pipes; musical instruments, including guitars, drums, gongs, bells, and rattles; ceremonial objects and fetishes; agricultural implements; spears, war knives, and throwing knives, made of iron; walking sticks; canoe paddles; a model of a native house; and a large number of photographs of the natives, their houses, and burial places, and various natural objects illustrating the environment of the people. This collection is arranged in the Warren Gallery. The duplicates have been placed in the Students' Collection in the laboratory, where they will serve to illustrate the customs of the negroes of the Congo in connection with the lectures on the ethnology of Africa.

Through General Charles G. Loring, there has been received as a gift from Professor W. M. Flinders Petrie, thirteen pieces of pottery from the cemeteries of about 3000 B.C. at Ballas and Nagada; and seventeen pieces from El Kab, belonging to the IV, XII, and XVIII Dynasties. This little collection of the ruder forms of Egyptian pottery is very acceptable, as it furnishes specimens for comparison with early forms from other countries.

Mr. A. E. Douglass has given a small lot of implements and ornaments of bronze and stone, flint arrowheads and chips, and a number of potsherds, which he collected in the prehistoric ruins of Tiahuanaco on Lake Titicaca; several articles made of wool by the Indians of Peru; an awl made of the bone of a bird; two spear points of bone, a knife and awl of iron; a knife with a glass blade and a model of a canoe, all of native work and collected by him from the natives of Magellan Strait.

From Mr. Clarence B. Moore (H. 1873), who has the interests of the Museum constantly in mind, there have been received two more large urns with the two vessels covering them. Each urn contained burnt human bones. They were from a mound near Lake Bluff, Altamaha river, Georgia, and are described by Mr. Moore in his recent *Memoir on the Mounds of Georgia*. Mr. Moore has also given the skulls and some other bones of the skeletons of two dogs found in a mound on Callawassie Island, South Carolina. For twenty years the Curator has been collecting the bones of dogs found in connection with prehistoric burials in various parts of America. In this he has received the coöperation of Mr. Moore who has from time to time sent him the skulls and various bones of dogs found in Southern mounds. A study of the skulls of these dogs, from the mounds and burial places in Florida, Georgia, South Carolina, Ohio, Kentucky, New York, and from the great shell-heap at Damariscotta, Maine, shows that a distinct variety or species of dog was widely distributed over North America in pre-Columbian time. Apparently the same variety of dog is found at the ancient site of the Swiss Lake dwellers at Neufchatel, and also in the ancient tombs at Thebes in Egypt. This variety of dog is apparently identical with the pure bred Scotch Collie of to-day. If this is the case, the prehistoric dog in America, Europe, and Egypt, and its persistence to the present time as a thorough-bred, is suggestive of a distinct species of the genus *Canis* which was domesticated several thousand years ago, and also that the prehistoric dog in America was brought to the continent by very early immigrants from the Old World. Comparisons are yet to be made with the dog of the ancient Mexicans, and of the southwestern tribes, and also with the Eskimo dog.

Mr. Francis La Fleche has added to the collection illustrating the Sacred Pole and the ceremonies pertaining to it by the gift of the buffalo-skin robe worn by Smoked Yellow, the Omaha Keeper of

* Mr. Moore has printed a letter (written by the Curator) relating to the prehistoric dog of North America, in his *Memoir on the Florida Coast Mounds*, p. 26. Philadelphia, 1896.

the Pole, in the ceremony of anointing the pole about 1860. This robe was left by Smoked Yellow to the Head Priest of the Pebble Society, who wore the robe on ceremonial occasions. The robe was given to Mr. La Flesche by this Head Priest. Mr. La Flesche has also given a pair of Otoe moccasins.

Miss Alice C. Fletcher has given Omaha and Winnebago moccasins, and a war robe, made of a wolf's skin, which belonged to Little Chief, an Omaha. This robe was worn by Little Chief in battle about 1850.

Dr. Franz Boas has made a donation of a rabbit-skin robe, and a two-handled stone hammer for stake driving, collected by him among the Bella Coola Indians.

Mr. G. Byron Gordon has presented a bag and a water gourd used by the Indians of Honduras, also gourd cups from Guatemala.

From Messrs. B. T. B. Hyde and F. E. Hyde, Jr., there has been received a collection illustrating Navajo weaving and blanket making, which includes wool in its several stages of preparation, native dyes, and a loom on which is a partially woven blanket with the instruments used in weaving.

Mr. Charles P. Bowditch has added to the Mexican collection several pieces of ancient pottery from Jalisco of a type new to the collection; also an Indian bow and arrows from Mexico collected by Mr. W. B. Richardson.

From the city of Quincy the Museum has received an Indian's skull from Hough's Neck.

From Dr. W. Sturgis Bigelow (H. 1871), arrowheads, knives, gouges, and other stone implements from Nantucket; and a wooden mask representing a woman wearing a labret from British Columbia.

From Messrs. R. D. Jenks (H. 1897) and H. Jenks, chipped stone implements from St. Helena Island, South Carolina.

From Mr. A. W. Robinson, a collection of counterfeit stone implements of various forms.

From Mr. Abram T. Gamage, objects of pottery, bone, shell, and stone from the shell-heaps at Damariscotta, Maine; and gouges, celts, and pendants of stone from an ancient burial-place at Pemaquid Pond, Maine.

From Mrs. C. A. Cummings, three pottery figures from Mexico.

From Mr. George R. Frazer, several chipped stone implements from Lake Munroe, Florida.

From Miss Adele Breton, who continues to remember the Museum while travelling in Mexico, there have been received a stone metate, several scrapers of obsidian, and many small or fragmentary figures.

From Dr. C. C. Abbott, who from time to time sends additions to the large Abbott Collection from New Jersey, there have been received two stone scrapers found on his farm in Trenton. One of these is chipped from obsidian, and is the second piece of obsidian he has sent from Trenton. The finding of obsidian in New Jersey is suggestive of a route of migration from the west, of intertribal exchange, or of warfare.

From Dr. Ales Hrdlicka a series of human tibiae, and the casts of sections of tibiae arranged to illustrate his paper on the forms and classification of the tibiae of the white race.

From Dr. Henry O. Forbes, Director of the Liverpool Corporation Museums, the department of Instruction has received, as an exchange, the skeleton of a gorilla, which was much needed for the purposes of comparative study in the students' laboratory.

The American Museum of Natural History has sent, as an exchange, a model, one-sixteenth natural size, of the sculpture at Quirigua, Guatemala, known as the "great turtle." This is an admirable and perfect model, made at the American Museum by Mr. Meyer from a full size cast of the sculpture.

The Library has received many serials in regular exchange for the Museum publications and a number of volumes and papers by gift, — in all 110 volumes and 104 pamphlets. The Library now contains 1,948 volumes and 2,583 pamphlets on anthropological subjects.

The principal gifts during the past year have been from the library of Professor J. D. Whitney, 25 important volumes; from Mr. C. P. Bowditch, several volumes and pamphlets; from the Duke of Loubat, the second part, completing the folio album, "*Galerie Americaine du Musée d'Ethnographie du Trocadero*." The volume contains 119 photographic plates of the principal archaeological and ethnological objects from America in the Paris Museum, with text by Dr. Hamy, the director of the Museum. This beautiful volume was published by the liberality of the donor. The Duke of Loubat has also given to the Museum one of the few copies of the fac-simile reproduction of the ancient Mexican manuscript known as the *Codex Borgiana* preserved in the library of the Vatican. It is a manuscript of 74 pages folded like a screen, each page of which has many figures in color. This is the second ancient manuscript which the Duke of Loubat has caused to be reproduced at his expense and of which he has given copies to various institutions. In the last report reference is made to the gift of a copy of the other manuscript—the *Codex Vaticanus*—from this patron of American research.

Dr. Frank Russell (H. 1896), the holder of the Hemenway Fellowship during the past year, gave such time as he could from his studies and his instruction in anthropology to cataloguing the osteological collection. At the close of the term he successfully passed his examination in the Division of American Archaeology and Ethnology and was given the degree of Ph.D. by the Faculty of Arts and Sciences. His thesis was "A Study of a Collection of Eskimo Crania from Labrador." The summer vacation was passed by Dr. Russell in a study of the Jicarilla Apaches of Arizona. Later he visited the Moki pueblo of Oraibi to witness the ceremonies attending the "Snake Dance." During his researches among the Apaches he collected for the Museum an interesting lot of objects illustrating the manufactures and customs of this tribe of Indians.

The income of the Huntington Frothingham Wolcott Fund for the year 1897-98 was used, by vote of the Faculty of the Museum, to pay in part the cost of the exploration of the ancient cemetery on the Ferris estate in Ohio, bequeathed to the Museum by the will of Miss Ferris. A notice of this bequest and of the exploration is given in the Curator's report of 1896-97. During the autumn and winter Mr. J. H. Swanton (H. 1896), holder of the Winthrop Scholarship, assisted for a time by Mr. Dixon, was engaged in assorting and studying the large collection obtained by this expedition. For the following five months he was engaged on the Hyde expedition of the American Museum of Natural History in the exploration of the ruins of the pueblo of Bonito in New Mexico. Returning in the autumn he entered Columbia University for the purpose of attending Dr. Boas' courses on Indian languages and ethnology during the present college year.

During the past summer Mr. R. B. Dixon (H. 1897) was an assistant on the Jesup Expedition in British Columbia, where he had the opportunity of studying the languages and customs of several Indian tribes. He returned to Cambridge at the opening of the present college year to continue his studies in this department of the Graduate School, and to prepare for the lectures he is to give as Assistant in Anthropology during the second half of the college year.

Mr. A. L. Dakin, a student assistant in the Museum, was making good progress in his studies when, at the outbreak of the war, being a member of the Concord company of the Sixth Regiment, he enlisted in the volunteers and went to Porto Rico with his regiment. He has returned home with his regiment and will soon resume his studies in the Museum.

Mr. C. C. Willoughby, Chief Assistant in the Museum, has given his time during the year to the arrangement of various collections, and to the cataloguing of the accessions and of such collections received in past years as could be brought into the rearrangement of certain exhibits now in progress. The cases in the lecture hall have been filled with the materials illustrating the various North American tribes, with the exception of those of the Northwest coast, the Eskimo, and the small collections from Mexico which are arranged in other halls and galleries. These specimens are now provided with printed labels and they furnish an instructive exhibit of Indian life. Many objects which have never been exhibited before are now shown in their proper connection; and the whole exhibit is arranged by tribes and families. Thanks to Mr. Willoughby's earnest and persistent labor, the Warren Ethnological Gallery, containing the collections from the Eastern and Western Eskimo, from Alaska and British Columbia, from the Pacific Islands, Australia, Asia, and Africa, was arranged, and the specimens in great part furnished with printed labels, in time to open the gallery to the public last summer. Several lots of specimens which have been stored for years in insect-proof tin boxes have been placed in this gallery.

Mr. Willoughby is now giving his time principally to the arrangement of the hall containing the important collections received from the Museum explorations in Central America and Mexico, with which will be incorporated the other specimens from that portion of America. During the absence of the Curator, Mr. Willoughby acts for him and has full charge of the Museum.

By an arrangement made with the Duke of Loubat, a series of the casts from the Museum moulds are being made for the American Museum of Natural History in New York. At the same time a number of casts are being made for the Museum of Science and Art in Philadelphia. In accordance with the proposition made in the last report of the Curator, the Museum will, through this assistance, make casts for the first time from many of the moulds secured by the expeditions to Copan. Mr. Gordon, under whose supervision many of the moulds were made in Copan, has been employed to supervise the work of making the casts.

Mr. E. E. Chick, after twenty years of service, resigned his position to take effect on September 1, 1898. Mr. Chick's valuable services, during these years, have been referred to in the annual reports of the Curator. He was always interested and efficient, and did much for the economical management of the building.

On August 26, the American Association for the Advancement of

Science was the guest of the University for the day, and nearly 1,000 members came from Boston, where the fiftieth anniversary of the Association was being celebrated. The Museum was visited by a large number of the members, among whom were many archaeologists and ethnologists. A meeting of the Anthropological Section was held at the Museum, when the Omaha Sacred Pole and its belongings formed the subject of an interesting paper ("The Ritual of the Sacred Pole") by Mr. La Flesche. The paper was further illustrated by graphophone records of songs by an aged Omaha who was the former keeper of the pole. As a compliment to the Association the Curator had prepared a "Guide to the Museum with a Statement relating to the Instruction in Anthropology," which was distributed to the members. This little pamphlet contains a brief history of the Museum, and makes mention of the collections in each room, calling attention to objects of special interest to the visitor.

Miss Fletcher, holder of the Thaw Fellowship, has been engaged in writing papers on different phases of Indian life as she has observed them during her close relations with the Indian in his daily life. Miss Fletcher was appointed by the Indian Bureau to represent the Bureau at the Omaha exposition, where she arranged a successful educational Indian exhibit. Later in the year she visited the Omaha tribe to gain further information on certain points needed for her records of the ethnology of the tribe.

Mrs. Zelia Nuttall, honorary assistant in Mexican archaeology, has continued her Mexican researches and has prepared, for publication by the Museum, the reproduction, with explanatory notes, of a Mexican pictographic manuscript with Spanish text. This manuscript is in the Florentine Library, where the work has been done by permission of the authorities of the library.

Miss Smith, in charge of the Library of the Museum, has continued the card catalogue by authors, and has assisted in cataloguing several collections in the Museum.

Miss Mead has continued in charge of the correspondence of the Museum as Secretary to the Curator.

Instruction in general anthropology and in American archaeology and ethnology was given in the Museum during the past college year, as mentioned in the last report of the Curator. For the year 1898-99 an additional course in advanced somatology is offered by Dr. Russell. Two half-courses have been added, one on somatology by Dr. Russell and one on Primitive Religions by Mr. Dixon and the Peabody Professor. The general course in anthropology is to be given by Dr. Russell. The Peabody Professor conducts the

advanced course in American archaeology and ethnology. There has been a decided increase in the number of students who have entered these courses during the present year.

From the balance of the gift of Mr. Robert C. Winthrop, Jr. (H. 1854), a long-needed movable case for the manuscript volumes of the catalogues of the Museum has been provided. This case is also furnished with drawers and a desk, so that it can be used in any room in the Museum for reference to the catalogues when arranging and labelling the specimens, and when making additions to the catalogues.

The gifts of money for various purposes during the year are as follows :—

SUBSCRIPTIONS THROUGH MR. CHARLES P. BOWDITCH.

Balance from former subscriptions	\$147 25
Estate of Mary Hemenway	500.00
Mrs. E. C. Ware	200.00
Miss Mary L. Ware	500.00
Stephen Salisbury	500.00
F. L. Higginson	200.00
Charles P. Bowditch	2,869.06
	<u>\$4,916.81</u>

EXPENDITURE OF THE MONEY THUS RECEIVED.

Instruction	\$175.00
Less repaid by Harvard College	58.50
Leaving balance of	<u>\$116.50</u>
Explorations	2,908.72
Publications to May, 1897	522.22
“ September, 1898	1,370.87
	<u>\$4,916.81</u>

SUBSCRIPTIONS THROUGH THE CURATOR.

Gift of Clarence B. Moore	\$500.00
“ Estate of Mary Hemenway	500.00
“ A. F. Esterbrook	50.00
	<u>\$1,050.00</u>

These amounts, received by the Curator, have been paid to the Treasurer. The account of the receipts and expenditures of the Peabody Museum are given in the Treasurer's report.

F. W. PUTNAM,
*Peabody Professor and Curator
of the Peabody Museum*

THE SEMITIC MUSEUM.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — In my last report reference was made to a valuable collection of Palestinian objects, and the hope was expressed that it might be secured for the University. This hope has been realized. A committee of the alumni of the Divinity School, aided by many contributors, have purchased the collection for the School, with the understanding that it is to be incorporated, so far as practicable, with the collections of the Museum. This new collection was brought together by Rev. Dr. Selah Merrill while he was acting as United States consul at Jerusalem. It contains Palestinian coins, glass vases, specimens of the fauna and the flora, geological specimens, and numerous objects illustrating ancient and modern life in Palestine. Of the birds some 150 are mounted, and there are about as many still unmounted. The mounted birds have been placed in the cabinet in the Divinity Faculty Room. It will be possible to place most of the other objects in the room now occupied by the Semitic Museum, though this will necessitate excessive crowding or the withdrawal of a part of the present exhibit. Such a condition illustrates anew the need of larger quarters.

The Museum has purchased two small bronzes with engravings in the Assyrian style. One is a hand mirror, and the central figure is a winged deity in human form standing on a mountain. In front of him is a worshiper, and above the worshiper the symbols of the sun and the new moon. The second engraving represents a seated figure (king or deity), in front of him a dog, above the dog the winged globe, the moon and the seven stars. Behind the dog are certain other objects, apparently two posts or columns on a mountain. While these engravings are clearly Assyrian in motive, the execution does not point to pure Assyrian workmanship. They may come from foreign artists overshadowed by Assyrian influence. If this be true, the objects have more than usual interest.

The only other purchase of the year is that of five Arabic manuscripts. Dr. John Orne has continued his work of studying and cataloguing the manuscripts belonging to the Museum.

By the kindness of the Director of the Boston Museum of Fine Arts, a dealer in oriental antiquities has placed on exhibition in that Museum a valuable collection of objects from Babylonia. It embraces several hundred written clay tablets and cones, about one hundred stone seal cylinders, and many other figures in terra-cotta and alabaster. The collection would be a most welcome addition to the Semitic Museum. We have about half the sum needed for its purchase, and it is hoped that friends of oriental study will help to make up the other half. The price asked is \$5,000.

In April last, the founder of the Semitic Museum and the Semitic Library added to his former benefactions the gift of \$5,000, to be divided between the Museum and the Library in such proportion as the needs of each might require. This generous gift is most welcome, and makes possible a very considerable increase in the resources of the Semitic Department.

D. G. LYON, *Curator.*

THE FOGG ART MUSEUM.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — I have the honor to submit the following report on the Fogg Art Museum for the year 1897-98:

No additions have been made to the collections of casts which, in the principal group, those representing Greek and Greco-Roman sculptures, is about as full as our space will allow; and, in connection with our large collection of photographs, is practically full enough for our purposes. A few additions to the smaller collections illustrating Egyptian and Assyrian sculptures, and to those from Mediaeval sculptures, are desirable, and for such additions we still have some space.

Our resources this year have not been sufficient to enable us to make large additions to the collection of photographs. The total number received was 1,306 — which, added to the number (24,757) previously reported, makes the whole number in the collection to September 1, 26,063. The groups thus added to are: Greek sculpture (including a full set of illustrations of the Sidon Sarcophagi), Egyptian sculpture, Flemish, Dutch, and German painting, Mediaeval German architecture, Mediaeval and Renaissance English architecture, Italian and French architecture of the Middle Ages and the Renaissance, and 46 reproductions from the original drawings of Turner's *Liber Studiorum*.

To the collection of slides 359 additions have been made. The whole number of slides on September 1 was 1,528.

We have received by gift from Professor Norton 12 photographic negatives of Hieropolis, and from C. G. Loring, Esq., of Boston, a fine white figured Greek *lekythos*.

All photographs, drawings, and prints belonging to the Fine Arts Department, not constantly needed in the drawing room in Sever Hall, are permanently deposited in the Museum; and to these two important additions were made during the past year—an original lead pencil drawing, a street scene in Ypres, by Samuel Prout, and a water color drawing, "Bird's Nest and Hawthorn Blossom," by William Hunt of the Old English Water Color Society. Both are admirable examples of the works of the respective masters.

To the Gray Collection of Engravings have been added by purchase a Crucifixion engraved on copper by Albert Dürer, and the

print Mars, Venus, and Cupid, also engraved on Copper, by Marc Antonio — also the yearly part of the *Kunsthistorischen Sammlungen des allerhöchsten Kaiserhauses*, to which the Gray Collection is a subscriber; and by gift from the author, Mr. Charles H. Middleton-Wake, a book entitled “The Invention of Printing,” and a “Catalogue of the Engraved work of Albert Dürer.”

The Gray Collection has been completely catalogued on sheets giving the names of the engravers represented, the country to which each belonged, the period at which he did his best work, the titles of all the prints by him in the collection, and the location of the prints in the storage cases. Where the engravings are after paintings the titles of the prints are entered alphabetically by the artists whose works they represent. Where we have prints representing two or more states of the same plate the different states are indicated; and in each case the kind of engraving — as burin work, etching, mezzotint, etc., is stated.

A card catalogue in two parts, made by Mr. Koehler, the former curator of the collection while it was in Boston, consists of an author index in which the names of engravers are arranged alphabetically in one series, and a case index, in which the engravers' names are arranged chronologically by countries. This serves as a guide to the sheet catalogue, and to the arrangement of the prints in the cases. The admirable scheme of this catalogue was devised by Mr. Koehler, and it has greatly facilitated the making of our own more complete catalogue; but considerable work had to be done upon it in changing the references to case locations from the Boston cases to our own.

In June last the Trustees of the Boston Museum of Fine Arts transferred to this Museum the John Witt Randall Collection of Engravings which had been bequeathed to Harvard College and temporarily deposited with them — as we then had no suitable place for its reception. This collection contains about 20,000 prints and drawings, among which are some of considerable importance. These added to the prints of the Gray Collection bring the whole number of prints in our Museum up to about 28,000, and form a working collection of wide range and great value. No accessions to the Randall Collection have yet been made since it came into our hands. The incomes from both the Gray and Randall funds having been extensively drawn upon of late it is thought best to make few additions to either of them for the present. Much work needs to be done on both collections (on the Randall collection a great deal must be done) in mounting, remounting, cleaning, and

cataloguing; and a part of each fund will have to be applied to the cost of this work for some time to come. The considerable extent, and chaotic condition of the Randall Collection when it came into Mr. Koehler's hands made it impossible for him, in addition to his other duties, to do more than make a general classification of its contents, and a list of the engravers represented. A catalogue of this collection similar to the one already made for the Gray Collection will have to be made; and when this is completed a series of subject lists, and process lists, must be made in order to enable us readily to bring together all of the material in both collections illustrating any particular class of subjects, or any kind of engraving.

During the year the Corporation decided that the will of Mrs. Fogg might be construed so as to allow us to turn over to the residuary legatees all objects (which had come into our hands with the Fogg Collection) that might be classed as furniture. This greatly relieved the overcrowded room devoted to the Fogg Collection. For the remaining objects, consisting of "paintings, articles of bric-à-brac, and Indian, Chinese and Japanese jewelry, curios, carvings, and other curiosities," suitable dust-proof cases enclosed with plate glass have been made. The small objects arranged in these cases, and the marble bust of Mr. Fogg, sufficiently fill the spaces on the four sides of the room, while the better paintings of the collection are hung upon the walls above.

The work of cataloguing the photographs has progressed more slowly than before. This is partly due to the difficulty which has been found in grouping, with approximate correctness, some classes of very ancient monuments and small objects, and also to the fact that my assistant who does this cataloguing was obliged to devote a large part of her time to assist in cataloguing the Gray Collection. Moreover a large number of photographs (which had long been in use by The Fine Arts Department before the Fogg Museum was established) had to be remounted, and the numbers and titles transferred from the old mounts to the new; and still further she has had to do the greater part of the work on the catalogue of slides which had been begun by a former assistant. This catalogue is now practically complete in respect to the number of slides now in our cases. In addition to a list of titles, with shelf numbers, this catalogue contains a small photographic print of each slide making it possible to select any that are needed for use without the necessity of going to the cases — which are located in the lecture room, and are therefore much of the time inaccessible. But with all of these difficulties and interruptions 2,296 new photographs were catalogued and arranged in the cases during the year.

The resort to the Museum during the day time has been very considerable, but the number of evening visitors has at no time been large. It has therefore been decided to discontinue the evening opening. The number of applications during the year, by members of the University and other persons, for access to photographs in the cases was 1,004, and of these 115 were made by evening visitors. We continue to loan photographs and slides to members of the University and, in some cases, to outsiders. Such loans have, during the past year, been made to the Classical, German, Semitic, and Architectural departments; and to Wellesley College and the Institute of Technology. The number of times these loans were made was of photographs 141, and of slides 28.

The number of applications, by students and others, for access to prints in the Gray Collection, not exposed in the exhibition cases, was 122. For the safe administration of the print collections the following rules have been made and are posted in the Print Room :

1. Visitors cannot be allowed to handle any engraving without special permission from the Director of the Museum, and then only in the presence and under the supervision of the Director or of one of his authorized assistants.
2. Persons wishing to copy any engraving may obtain permission to do so on application to the Director, who will cause the engraving, while thus in use, to be kept under glass.
3. No engraving shall be taken from the room especially devoted to the Print Collections.
4. Books in the reference library are accessible on application, but they must in no case be removed from the Print Room without special permission from the Director.
5. Notes must be taken with lead pencil only. Ink, whether in ordinary, stylographic, or fountain pens, must not be used in the Museum.

In order that we may know more exactly in future what kind of use is made of the print collections we propose to keep a visitors' book in which the name and address of each applicant shall be entered, together with a statement of the purpose for which he seeks access to the collections. Such a book was kept by Mr. Koehler while the collections were in his charge, and was found useful.

We propose, also, henceforth to keep a similar registration book for the collection of photographs.

While with our present limited resources we cannot hope to do more than to maintain a somewhat steady growth of the collection

of photographs, and to make some additions to the collections of prints. we must not lose sight of the fact that our Museum was founded "to be used for the collection and exhibition of works of art of every description"; and that while we do not need to gather here extensive miscellaneous collections, it is desirable that we should acquire a limited series of representative original works of the highest character in the various important branches of art. The photographs afford, indeed, a wide range of material illustrating works of art of all kinds. They form a collection of documents of the highest value to students of Archaeology and History as well as to students of the Fine Arts; but photographs alone are inadequate. We need some original examples to give the photographs their full value. The small collection of Greek vases which have been loaned to us by Mr. E. P. Warren '88 are the best of their kind, and are almost sufficient for our needs; and a series of about fifty ancient glass objects, of representative and high character, have recently been received on deposit, in the hope that some friend of the Museum may give us the means to acquire them. The price asked for this collection (which is admirably suited to our needs) is six hundred dollars. This collection is now on view in the room of coins and vases. Besides our needs in such directions we must keep steadily in view our urgent need of at least a few original paintings of the highest class, of the Italian, Flemish, and other important schools of art of past times. We ought to have a considerable fund for the building up of such a collection. An annual income of even a few thousand dollars would enable us to do something in this direction. Opportunities for such acquisitions are constantly arising, and it is to be hoped that our Museum may gradually be enriched with such things.

Our present available annual resources for additions are as follows: From the William Hayes Fogg endowment about \$2,000, but this must be used primarily toward conducting and maintaining the building. From the Gray Fund about \$675, to be used for the increase and maintenance of the Gray Collection of Engravings. From the John Witt Randall Fund about \$1,270, "to be used for the care and increase of the Randall collection, and for the interest of the department of engraving and the allied branches of the Fine Arts." From the William Mackay Prichard Fund about \$600, "the income only of said fund to be used to increase the Fine Arts collections of said College."

CHARLES H. MOORE, *Director.*

MINERALOGICAL MUSEUM AND LABORATORIES OF MINERALOGY AND PETROGRAPHY.

TO THE PRESIDENT OF THE UNIVERSITY:—

SIR, — There have been no changes in the courses offered the past year nor in the personnel of the staff, Dr. Charles Palache continuing as Instructor in Mineralogy and Dr. Arthur S. Eakle as Assistant in Mineralogy and Petrography. The removal of the courses in Mining and Metallurgy to the Rotch Laboratory, now progressing, enables us to utilize much needed room for the Mineralogical Library and for the Chemical Laboratory in the basement, while the building is freed from whatever fire-risk may have attended the use of the assay furnaces.

Among the additions to the Mineralogical Museum may be mentioned a collection of 250 natural crystals, carefully selected and labelled to illustrate the systems of crystallography, which have been accumulating for some years and are now exhibited in a special case. Also a framed collection of 400 separate micro-photographs of snow crystals, made during twenty years by Mr. W. A. Bentley, of Nashville, Vermont, and striking for their size and perfection. We have acquired by purchase several superb calcite crystals from the Lake Superior copper mines and the loan of a large collection of the same calcites from Dr. Lucius L. Hubbard which are exhibited in adjacent cases. Twenty of the vacant cases in the gallery have been utilized for a synoptic collection illustrating the physical characteristics of minerals, such as color, cleavage, lustre, etc., and their genesis and mode of occurrence.

Large framed plans giving the distribution, number, and contents of each case have been hung on the main floor and gallery, while a copy of Dana's System of Mineralogy is placed in the room for more detailed information; this will be followed in time by the preparation of explanatory labels for each case. While preparing a brief account of the Museum for the "Guide to Harvard University" published for the meetings of scientific societies at Boston in 1898, the Curator has completed the outline of a more extended and detailed guide for the use of visitors, which it may be desirable at some future time to publish, and distribute to those interested, perhaps at a nominal price.

The following papers were published during the year:—

Erionite, a new Zeolite, by ARTHUR S. EAKLE. *Amer. Journ. Science*, June, 1898. Also in German in the *Zeitschrift für Krystallographie*, Vol. XXX, part 2. [This was based on material acquired by the Museum together with some magnificent opal specimens from Mr. E. Porter Emerson.]

Topaz crystals in the Mineral Collection of the U. S. National Museum; ARTHUR S. EAKLE. *Proc. U. S. Nat. Mus.*, Vol. XXXI, 1898.

An occurrence of acid Pegmatyte in Diabase; T. A. JAGGAR, JR. *Amer. Geologist*, Vol. XXI, April, 1898.

Contributions from the Harvard Mineralogical Museum:—I. Occurrence of Native copper at Franklin Furnace, N. J. II. Exhibition and preliminary description of a collection of micro-photographs of snow crystals made by W. A. Bentley. —J. E. WOLFF. *Proc. Am. Acad.*, Vol. XXIII, June, 1898. [Both of these papers are based on material acquired by the Museum.]

Dr. Palache has completed his monograph on the Lake Superior calcites, which is now in press. Dr. Eakle has finished the description and analysis of a peculiar dike rock from Beverly, is preparing a description of the rocks brought from the Fiji Islands by Mr. Agassiz, and is working up the petrography of the Middlesex Falls and the Blue Hills. The Curator has continued his work on the mines and geology of Franklin Furnace and in the southern part of the Green Mountains of Vermont.

JOHN E. WOLFF, *Curator*.

RADCLIFFE COLLEGE.

TO THE PRESIDENT OF THE UNIVERSITY: —

SIR, — I have the honor to present my report on the condition of Radcliffe College during the academic year 1897-98.

The number of students in actual attendance during the year was 424, a gain of 54 over the preceding year.

Graduate Students	61
Seniors	43
Juniors	46
Sophomores	60
Freshmen	65
Special Students	149
Total	424

At the Commencement in June, 1898, forty-seven students, four of whom had completed their work in 1896-97 and had not been registered as Seniors in 1897-98, received the degree of Bachelor of Arts. Four of the forty-seven received the degree *summa cum laude*; sixteen received the degree *magna cum laude*; fourteen received the degree *cum laude*. Nine students received the degree of Master of Arts.

Examinations for admission were held, in June and July, 1898, in New York, Buffalo, Chicago, Cincinnati, Lawrenceville (N. J.), Pomfret (Conn.), Portland (Me.), Quincy, San Francisco, Springfield, St. Louis, Washington (Conn.), Washington (D. C.), Worcester, and Youngstown (O.), as well as in Cambridge. Three hundred and fifty-eight candidates presented themselves for examination; thirty-two were candidates for admission as special students; fifty-one candidates took part of the examination or made up admission conditions; one candidate was examined for advanced standing. One hundred and sixty-one took the Preliminary Examinations, and one hundred and thirteen the Final Examinations. The results of the Final Examinations are given in the following table: —

	Admitted.	Admitted "Clear."	Rejected.
June	98	87	8
September	9	1	8
Total	107	88	11
Total rejected . . .	11		
	118		

One hundred and two candidates were admitted as Freshmen in 1898, as against eighty-eight in 1897.

Of the sixty-one Graduate Students registered during the year, forty were from other colleges than Radcliffe. Thirty-two students were admitted to eleven full courses, and eighteen students to eight half-courses of the "Courses primarily for Graduates in Harvard University open to competent students of Radcliffe College."

Sanskrit was taken	by one student.
Classical Philology was taken	by fifteen students.
Romance Philology was taken	by three students.
Philosophy was taken	by seven students.
History was taken	by four students.
Government was taken	by five students.
Mineralogy was taken	by one student.
Education and Teaching was taken	by fourteen students.

The number of courses offered in 1897-98 was 183, by 111 professors and instructors in Harvard University.

The members of the Academic Board for 1897-98 were: Professors Byerly (*Chairman*), Greenough, Mark, Wright, Macvane, B. O. Peirce, von Jagemann, Grandgent, and Kittredge; and the President and the Dean of Radcliffe College.

Radcliffe College Monograph No. 10 has just been published; it is the thesis on "On the Sources of Chaucer's Nonne Prestes Tale" by Kate O. Petersen, A.M., prepared under the direction of Professor George L. Kittredge and highly recommended by him.

The gifts of the year have been many and splendid; and we are delighted to report the erection of the first of our permanent buildings, the gift of Mrs. Augustus Hemenway, who gave us \$50,000 to build a Gymnasium, thereby doing for Radcliffe what Mr. Hemenway had already done for Harvard. Ground was broken in April, 1898, and the Gymnasium will be ready for use about the first of December. This first Radcliffe building is to serve as a model for the other buildings, soon, we hope, to follow, and the style of architecture was long and seriously considered. The result is a beautiful building, in the Colonial style, of red brick with white trimmings, containing a remarkably fine hall (96 × 50), an ample supply of baths, dressing-rooms, and locker-rooms, and, in the basement, a large swimming-pool (57½ × 20). The running expenses of a swimming-pool are great, and we must hope for another generous benefactor; the pool, however, will be completed without delay, as Miss Marian Hovey has given us for that purpose the sum of \$2,000, with accrued interest of \$160.34,

entrusted to her for some such use by the late Mrs. Mary Hem-enway. A similar sum of \$2,160.84 Miss Hovey has given us for the purchase of apparatus, and we remember with profound grati-tude that the sending of these sums to our Treasurer was among the last acts of Miss Hovey's beneficent life.

We have to report the promise of a second building. An associa-tion of our graduates and former students, keenly feeling the need of a small dormitory, undertook to raise the money, and through the Chairman of the Committee, Miss Leslie W. Hopkinson, Mrs. David P. Kimball offered to give \$50,000 for a small hall of residence. The offer was most gratefully accepted, and the site and plans are now under consideration.

The graduates and former students have given another evidence of their lively interest in the College by completing the amount of \$5,000 needed to establish the "Harvard Annex Alumnae Scholar-ship."

Among the other gifts, bequests and legacies of the year are the following:

From the estate of Henry L. Pierce, \$20,000.

From the estate of Ellen M. Barr, \$52,619.66. Miss Barr was the head of a well-known school for girls in Boston, and she bequeathed to Radcliffe College the residue of her estate, accumu-lated in years of honorable and successful toil. Subject to the pay-ment of an annuity, the income of this bequest is to be applied in the form of annual scholarships.

From the estate of Sarah Parker, \$2,184.23 additional, on account of her residuary bequest.

From James H. Hyde, \$100, for the purchase of French books for the Radcliffe Library.

From Marian C. Jackson and others, \$150, to defray the expense of a course of lectures on the Philosophy of the Kindergarten.

From subscribers to the Caroline I. Wilby Fund, \$30, additional, making the Fund \$3,060.

The sum total then of gifts and bequests actually received by the Treasurer during the year to July 31, 1898, is \$114,814.57.

In closing the record of this successful and prosperous year, I respectfully submit the following statement concerning Miss Ethel Dench Puffer. Miss Puffer (A.B. Smith Coll. 1891), was a graduate student in Radcliffe College during the year 1897-98; she worked principally in the laboratory of Professor Münsterberg, where she completed the research work begun under his direction in his laboratory in Freiburg, in 1896-97. Miss Puffer prepared a thesis

"On Symmetry," a study of the aesthetic problems connected with symmetry, from the point of view of experimental psychology; this thesis was examined by Professor Münsterberg, Professor William James, and Assistant Professor Santayana, and was by them certified to be of distinguished merit. In May, 1898, the Committee on Honors and Higher Degrees of the Division of Philosophy in Harvard University gave Miss Puffer a long and searching oral examination "of the same nature as would have been given by the Division to a candidate for the degree of Doctor of Philosophy in Harvard University," at the close of which examination it was voted to report to the Faculty of Arts and Sciences, that the Division had "unanimously found Miss Puffer unusually well qualified for that degree."

AGNES IRWIN, *Dean.*

APPENDIX.

RESIGNATIONS.

EDWARD WILLIAM HOOPER, member of the Committee on the Fogg Museum.
October 18, 1897.

JOSEPH JAMES CURRY, Assistant in Pathology. November 1, 1897.

CHARLES ELIOT NORTON, Professor of the History of Art, to take effect at the end of the current academic year. November 29, 1898.

ALLEN DANFORTH, Deputy Treasurer, to take effect February 11, 1898.
January 12, 1898.

JOHN HUMPHREYS STORER, Curator of Coins in the College Library. February 28,
1898.

ALEXANDER AGASSIZ, Director of the Museum of Comparative Zoölogy.
April 11, 1898.

EDWARD WILLIAM HOOPER, Treasurer, to take effect July 31, 1898. May 18,
1898.

JAMES MILLS PEIRCE, Dean of the Faculty of Arts and Sciences, to take effect
September 1, 1898. September 27, 1898.

FRANK COLE BABBITT, Instructor in Greek, to take effect September 1, 1898.
September 27, 1898.

APPOINTMENTS.

[WITHOUT LIMIT OF TIME, OR FOR MORE THAN ONE YEAR.]

ALLEN DANFORTH, to be Comptroller, from December 1, 1897. November 29,
1897.

WILLIAM COOLIDGE LANE, to be Librarian. December 20, 1897.

CHARLES ELIOT NORTON, to be Professor of the History of Art, Emeritus.
December 20, 1897.

WILLIAM MORROW MCINNES, to be Assistant Bursar, from January 1, 1898.
January 3, 1898.

BARRETT WENDELL, to be Professor of English. January 31, 1898.

GEORGE SANTAYANA, to be Assistant Professor of Philosophy, for five years from
September 1, 1898. January 31, 1898.

RUDOLPH BLASCHKA, to be Artist-naturalist to the Department of Botany.
January 31, 1898.

MALCOLM STORER, to be Curator of Coins in the College Library. February 28,
1898.

CHARLES POMEROY PARKER, to be Assistant Professor of Greek and Latin, for
five years from September 1, 1897. February 28, 1898.

HANS CARL GÜNTHER VON JAGEMANN, to be Professor of Germanic Philology.
March 14, 1898.

- ALEXANDER AGASSIZ, to be Director of the Museum of Comparative Zoölogy, Emeritus. April 11, 1898.
- OLON IRVING BAILEY, to be Associate Professor of Astronomy, from February 1, 1898. April 11, 1898.
- WILLIAM TOWNSEND PORTER, to be Associate Professor of Physiology, from September 1, 1898. April 11, 1898.
- EDWARD HICKLING BRADFORD, to be Assistant Professor of Orthopedics, for five years from September 1, 1898. April 11, 1898.
- CHARLES FRANCIS ADAMS, 2d, to be Treasurer, to serve from July 31, 1898. May 18, 1898.
- EDWARD CUMMINGS, to be Assistant Professor of Sociology, for five years from September 1, 1898. May 18, 1898.
- CHARLES HENRY CONRAD WRIGHT, to be Instructor in French. May 18, 1898.
- EDWARD HENRY STROBEL, to be Bemis Professor of International Law. May 23, 1898.
- LIONEL SIMON MARKS, to be Instructor in Mechanical Engineering, from September 1, 1898. May 23, 1898.
- CHARLES HARRINGTON, to be Assistant Professor of Hygiene, for five years from September 1, 1898. June 13, 1898.
- ALBERT ANDREW HOWARD, to be Assistant Professor of Latin, for five years from September 1, 1898. June 13, 1898.
- CLIFFORD HERSCHEL MOORE, to be Assistant Professor of Greek and Latin, for five years from September 1, 1898. June 13, 1898.
- JAMES HARDY ROPES, to be Assistant Professor of New Testament Criticism and Interpretation, for five years from September 1, 1898. June 13, 1898.
- WILLIAM FOGG OSGOOD, to be Assistant Professor of Mathematics, for five years from September 1, 1898. June 13, 1898.
- FRANZ PFAFF, to be Instructor in Pharmacology and Physiological Chemistry, from September 1, 1898. June 13, 1898.
- JOSEPH DODDRIDGE BRANNAN, to be Professor of Law. June 15, 1898.
- ARTHUR RICHMOND MARSH, to be Professor of Comparative Literature, from September 1, 1898. September 27, 1898.
- LANGDON FROTHINGHAM, to be Instructor in Pathology, for three years from September 1, 1898. September 27, 1898.

[FOR ONE YEAR OR LESS.]

For 1897-98.

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| HANS REUSCH, to be Sturgis-Hooper Professor of Geology. | October 4, 1897. |
| FRANCIS DOUGLASS, to be Instructor in Gymnastics. | October 4, 1897. |
| FRANK HENRY GAZZOLO. Chemistry. | } To be Assistants.
October 4, 1897. |
| LAWRENCE JOSEPH HENDERSON. Chemistry. | |
| KENNETH LAMARTINE MARK. Chemistry. | |
| EDGAR WILLIAM OLIVE. Botany. | |
| ALVIN SAWYER WHEELER. Chemistry. | |
| MOSES HANNIBAL WRIGHT. Mechanical Drawing. | |
| FRANK ALBERT HIGGINS. Obstetrics. | |
| ARLO BATES, to be Lecturer on English. | October 11, 1897. |
| JAMES HENRY FISHER, to be Instructor in Engineering Contracts. | October 11, 1898. |

BURTIS BURR BREKSE. Psychological Laboratory.	} To be Assistants. October 11, 1897.
ROLAND BURRAGE DIXON. Anthropology.	
GEORGE NEELY HENNING. French.	
ROSWELL HILL JOHNSON. Zoölogy.	
EMILE THEODORE LAMBERT. German.	
JOHN DANIEL LOGAN. Philosophy.	
CARL TROWBRIDGE ROBERTSON. Chemistry.	
FRANCIS HARDING WHITE. History.	
WILLIAM SARAGENT BURRAGE, to be Instructor in Latin.	October 18, 1897.
WILLIAM WARREN BELL, to be Assistant in History.	October 18, 1897.
CHARLES WHITNEY MIXTER, to be Assistant in Political Economy.	October 18, 1897.
MARTIN MOWER, to be Assistant in Fine Arts.	October 18, 1897.
JOHN GEORGE JACK, to be Lecturer at the Arnold Arboretum, from January 1, 1897, to January 1, 1898.	October 25, 1897.
DONALD FRANK CAMPBELL, to be Instructor in Mathematics.	November 8, 1897.
ARTHUR BOWES FRIZELL, to be Instructor in Mathematics.	November 8, 1897.
GEORGE CARROLL CURTIS, to be Assistant in the Geographical Laboratory.	November 8, 1897.
CHARLES HENRY WHITE, to be Assistant in Geology.	November 8, 1897.
JOSEPH DANA ALLEN.	} To be Examination Proctors. November 8, 1897.
JOHN CHARLES STATES ANDREW.	
RAYMOND CLARE ARCHIBALD.	
BURTIS BURR BREKSE.	
GUY STEVENS CALLENDER.	
WALTER BRADFORD CANNON.	
EDWARD HENRY COLPITTS.	
RALPH WALDO CONE.	
EDWIN RUST DODGLAS.	
SIDNEY BRADSHAW FAT.	
CHARLES SUNNER GRIFFIN.	
FREDERICK ORVILLE GROVER.	
ROBERT WILLIAM HALL.	
HENRY BARRETT LEARNED.	
WILLIAM EDWARD McELFRESH.	
FREDERICK CHASE McLAUGHLIN.	
HERBERT CAMP MARSHALL.	
VERNON FREEMAN MARSTERS.	
WILLIAM JOSEPH MILLER.	
GEORGE THOMAS MOON.	
JOHN FREDERICK NEAL.	
GEORGE RAPALL NOYES.	
WILLIAM MAXWELL REED.	
HENRY LINDSAY SANFORD.	
CHARLES EDWARD SEAMAN.	
ALFRED DWIGHT SHEFFIELD.	
JAMES SULLIVAN, JR.	
FREDERICK CLAYTON WAITE.	
EDWARD HENRY WARREN.	
HARRY WHITE.	

- HENRY LEE.
 WILLIAM STURGIS BIORLOW.
 ARTHUR ASTOR CAREY.
 BASIL LANNEAU GILDERSLEEVE, to be Lecturer on the Greek Comedy. November 29, 1897.
 WALLACE MARTIN LINDSAY, to be Lecturer on Classical Philology. November 29, 1897.
 CHARLES ERWIN PARKHURST, to be Instructor in Operative Dentistry. November 29, 1897.
 WALTER HARRIS WHITE, to be Instructor in Operative Dentistry. November 29, 1897.
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| THOMAS FRANKLIN CURRIER. Cataloguing. | } | To be Assistants.
November 29, 1897. |
| JAMES ALLEN BUTLER. Engineering. | | |
| DANIEL FRANCIS CALHANE. Chemistry. | | |
| ALLERTON SEWARD CUSHMAN. Chemistry. | | |
| EDWARD SKINNER KING. Observatory. | | |
| LEWIS FERANDUS CRAWFORD. | } | To be Proctors.
November 29, 1897. |
| FRANCIS ERASTUS HOLIDAY. | | |
| JOHN FREDERICK NEAL. | | |
| EDWARD HENRY WARREN. | | |
- HARRIS EASTMAN SAWYER, to be Lecturer on the Chemistry of Fermentation. December 18, 1897.
 ERNEST BOYEN YOUNG, to be Assistant in Anatomy. December 18, 1897.
 CHARLES FRANCIS ADAMS, 2d, to be Deputy Treasurer, for four months. January 12, 1898.
 HENRY BARRETT HUNTINGTON, to be Assistant in Philosophy. January 31, 1898.
 HENRY BARRETT HUNTINGTON, to be a member of the Board of Examination Proctors. January 31, 1898.
 HEINRICH CONRAD BIERWIETH, to be a member of the Administrative Board of the Lawrence Scientific School. March 28, 1898.

For 1898-99.

- JENS IVERSON WESTENGARD, to be Instructor in Criminal Law and Pleading. March 28, 1898.
 HENRY WALTON SWIFT, to be Lecturer on Sales. June 28, 1898.
 BENJAMIN IDE WHEELER, to be Ingersoll Lecturer on the Immortality of Man. April 25, 1898.
 EDWARD ROBINSON, to be Lecturer on Classical Archaeology. April 25, 1898.
 JENS IVERSON WESTENGARD, to be Instructor in Engineering Contracts and Specifications. April 25, 1898.
 FRANK LOWELL KENNEDY, to be Assistant in Mechanical Drawing and Descriptive Geometry. April 25, 1898.
 ABBOTT LAWRENCE LOWELL, to be Lecturer on Existing Political Systems. May 18, 1898.
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| MORTON ARNOLD ALDRICH. Political Economy | } | To be Instructors.
May 18, 1898. |
| CHARLES HAMILTON ASHTON. Mathematics. | | |
| IRVING BARBITT. French. | | |
| GREGORY PAUL BAXTER. Chemistry. | | |
| GEORGE WILLIS BOTSFORD. History of Greece and Rome. | | |

CHARLES LEONARD BOUTON. Mathematics.
 ALPHONSE BRUN. French.
 GUY STEVENS CALLENDER. Political Economy.
 JOHN FIRMAN COAR. German.
 RICHARD COBB. English.
 JOHN CUMMINGS. Political Economy.
 REGINALD ALDWORTH DALY. Physiography.
 JEREMIAH DENIS MATTHIAS FORD. French.
 THOMAS HALL, JR. English.
 JOHN GODDARD HART. English.
 WILLIAM GUILD HOWARD. German.
 THOMAS AUGUSTUS JAGGAR, JR. Geology.
 ALPHONSE MARIN LA MESLÉE. French.
 ROBERT MACDOUGALL. Psychology.
 ELISHA WILSON MORSE. Natural History.
 EDGAR WILLIAM OLIVE. Botany.
 CHARLES PALACHE. Mineralogy and Petrography.
 BENJAMIN RAND. Philosophy.
 PIERRE LA ROSE. English.
 FRANK RUSSELL. Anthropology.
 FREDERICK HOLLISTER SAFFORD. Mathematics.
 WILLIAM HENRY SCHOFIELD. English.
 WALTER RAYMOND SPALDING. Music.
 JOHN PERCIVAL SYLVESTER. Chemistry.
 EDWARD HENRY WARREN. Political Economy.
 JAY BACKUS WOODWORTH. Geology.
 CHARLES LOWELL YOUNG. English.

To be Instructors.

May 18, 1898.

OTIS FISHER BLACK. Chemistry.
 JOHN MASON BOUTWELL. Physiography.
 EDWIN HENRY COLPITS. Physics.
 ROLAND BURRAGE DIXON. Anthropology.
 ARTHUR STARR EAKLE. Mineralogy and Petrography.

WINTHROP EDWARDS FISKE. Physics.
 ROBERT WARREN FULLER. Chemistry.
 HENRY BARRETT HUNTINGTON. English.
 GEORGE RICHARD LYMAN. Cryptogamic Botany.
 DANIEL GREGORY MASON. English.
 GUSTAVUS HOWARD MAYNADIER. English.
 GEORGE THOMAS MOORS. Cryptogamic Botany.
 MARTIN MOWER. Fine Arts.
 ALFRED DWIGHT SHEFFIELD. English.
 ALVIN SAWYER WHEELER. Chemistry.
 JOSEPH EDMUND WOODMAN. Geology.

To be Assistants.

May 18, 1898.

WILLIAM VAUGHAN MOSES, to be Instructor in Mechanical Drawing and Machine Design. May 23, 1898.

JOHN WINTHROP DOW. Chemistry.
 MERRITT LYNDON FERNALD. Herbarium. } To be Assistants. May 23, 1898.
 FREDERIC HOUSTON KENT, to be Proctor. May 23, 1898.

IRA NELSON HOLLIS.	}	To be a Committee on the Regulation of Athletic Sports. June 13, 1898.
EDWARD HICKLING BRADFORD.		
EDWIN HERBERT HALL.		
JAMES JACKSON STORROW.		
GEORGE HARRIS.	}	To be Preachers to the University. June 13, 1898.
HENRY VAN DYKE.		
GEORGE HODGES.		
WILLIAM DEWITT HYDE.		
WILLIAM HERBERT PERRY FAUNCE.	}	To be Instructors. June 13, 1898.
ASAPH HALL, to be Lecturer on Celestial Mechanics. June 13, 1898.		
DONALD FRANK CAMPBELL. Mathematics.		
WILLIAM ERNEST CASTLE. Anatomy and Embry- ology.		
ROBERT JAY FORSYTHE. Metallurgy and Metal- lurgical Chemistry.		
ARTHUR BOWES FRIZELL. Mathematics.		
WILLIAM EDWARD MCCLINTOCK. Highway Engi- neering.		
HUGO RICHARD MEYER. Political Economy.		
HENRY LEE PRESCOTT. English.		
GEORGE STAPLES RICE. Sanitary Engineering.		
PRESCOTT ORDE SKINNER. Italian and Spanish.		
LEO WIENER. Slavic Languages.		
JOHN CHARLES STATES ANDREW. History.		
WILFRED GEORGE GARNET COLE. Classics.		
PETER FRANDSEN. Zoology.		
ROBERT WILLIAM HALL. Zoology.		
ALBERT HITCHINGS NEWHALL. History.		
CHARLES WILLIAM PRENTISS. Zoology.		
HERBERT WILBUR RAND. Zoology.		
CHARLES EDWARD SEAMAN. Government.		
STEPHEN EDGAR WHITING. Electrical Engineering.		
STEPHEN RIGGS WILLIAMS. Zoology.		
MORTON ARNOLD ALDRICH.	}	To be Proctors. June 13, 1898.
JOHN CHARLES STATES ANDREW.		
GEORGE WYLLYS BENEDECT.		
HARRY AUGUSTUS BIGELOW.		
JOHN MARION BOUTWELL.		
WALTER BRADFORD CANNON		
EDWIN HENRY COLPITTS.		
RALPH WALDO CONE.		
JOHN WELLS FARLEY.		
EUGENE ALLEN CHIMORE.		
CHARLES SUMNER GRIFFIN.		
FREDERICK ORVILLE GROVER.		
FRANCIS ERASTUS HOLLIDAY		
FRANK LOWELL KENNEDY.		
HENRY BARRETT LEARNED.		
GEORGE RICHARD LYMAN		
WILLIAM EDWARD MCELFRISH.		

DANIEL GREGORY MASON.	}	To be Proctors. June 13, 1898.	
WILLIAM JOSEPH MILLER.			
GUY MURCHIE.			
JOHN FREDERICK NEAL.			
JAMES HORACE PATTEN.			
WILLIAM MAXWELL REED,			
CHARLES EDWARD SEAMAN.			
ALFRED DWIGHT SHEFFIELD.			
PRESCOTT ORDE SKINNER.			
HOLLIS WEBSTER.			
ALVIN SAWYER WHEELER.	}	To be Assistants. June 16, 1898.	
SIDNEY RUSSELL WRIGHTINGTON.			
CHARLES HAMILTON AYRES. Physics.			
WILLIAM EDWARD MCELFRESH. "	}		
WILLARD STREETER BASS. "			
LE BARON RUSSELL BRIGGS.	}	To be Members of the Administrative Board of Harvard College. June 28, 1898.	
JAMES BRADSTREET GREENOUGH.			
GEORGE ALONZO BARTLETT.			
FRÉDÉRIC CÉSAR DE SUMICHRASST.			
CHARLES POMEROY PARKER.			
EDWARD CHANNING.			
HUGO CARL SCHILLING.			
CHARLES HALL GRANDGENT.			
WALLACE CLEMENT SABINE.			
LEWIS JEROME JOHNSON.			
ALFRED BULL NICHOLS.			
JOHN HAYES GARDINER.			
ARCHIBALD CARY COOLIDGE.			
BYRON SATTERLEE HURLBUT.			
ROBERT DECOURCY WARD.			
CHARLES BURTON GULICK.	}	To be Members of the Administrative Board of the Lawrence Scientific School. June 28, 1898.	
NATHANIEL SOUTHOATE SHALER.			
IRA NELSON HOLLIS.			
HERBERT LANGFORD WARREN.			
HENRY LLOYD SMYTH.			
HEINRICH CONRAD BIERWIRTH.			
JAMES LEE LOVE.			
JOSEPH TORREY.			
GEORGE WELLS FITZ			
GEORGE HOWARD PARKER.			
COMFORT AVERY ADAMS.	}	To be Members of the Administrative Board of the Graduate School. September 27, 1898	
JOHN HENRY WRIGHT.			
CHARLES LORING JACKSON.			
JOHN WILLIAMS WHITE.			
WILLIAM ELWOOD BYERLY.			
BENJAMIN OSGOOD PEIRCE.			
HANS CARL GÜNTHER VON JAGEMANN.			
JOHN ELIOT WOLFF.			
ALBERT BUSHNELL HART.	}		
GEORGE LYMAN KITTREDGE.			
HUGO MÜNSTERBERG.			

FRANK COLE BABBITT. Greek.	} To be Instructors. June 28, 1898.
ANDREW GARBUTT. Modelling.	
GEORGE FREDERICK NEWTON. Designing and Drawing.	
MARSHALL HENRY BAILEY. Physiology and Medical Visiting.	
HARRY AUGUSTUS BIGELOW. International Law.	} To be Assistants. June 28, 1898.
WINFRED WAITE BRAMAN. Chemistry.	
ELLIOT HERSEY GOODWIN. History.	
FERNALD LESTER HANSON. History.	
OLIVER MITCHELL WENTWORTH SPRAGUE. Economics.	
WALTER DANA SWAN. Architecture.	
NORMAN MACLAREN TRENHOLME. History.	
BERTRAM GORDON WATERS, to be a member of the Committee on the Regulation of Athletic Sports. September 27, 1898.	
WILLIAM CUNNINGHAM, to be Lecturer on Economic History. September 27, 1898.	
FREDERICK SHENSTONE WOODS, to be Lecturer on Mathematics. September 27, 1898.	
JESSE MORE GREENMAN, to be Assistant in the Herbarium. September 27, 1898.	
CHARLES SUMNER ILAWES, to be Auditor of the Dining Association. September 27, 1898.	
FRANCIS DOHS, to be Instructor in Gymnastics. September 27, 1898.	
WILLIAM FENWICK HARRIS, to be Instructor in Greek. September 27, 1898.	
JAMES GRAY LATHROP, to be Instructor in Athletics. September 27, 1898.	
JOHN GEORGE JACK, to be Lecturer in the Arnold Arboretum, from January 1, 1898, to January 1, 1899. September 27, 1898.	
CYRUS GUERNSEY PRINGLE, to be Botanical Collector, from January 1, 1898, to January 1, 1899. January 31, 1898.	
SAMUEL HOLMES DURGIN, to be Lecturer on Hygiene. June 13, 1898.	
CHARLES MONTRAVILLE GREENE, to be Secretary of the Medical Faculty. June 13, 1898.	
VINCENT YARDLEY BOWDITCH. Clinical Medicine.	} To be Instructors. June 13, 1898.
JOHN TEMPLETON BOWEN. Dermatology.	
EDWARD MARSHALL BUCKINGHAM. Diseases of Children.	
ELBRIDGE GERRY CUTLER. Theory and Practice of Physic.	
EDWIN WELLES DWIGHT. Legal Medicine.	
WILLIAM WHITWORTH GANNETT. Clinical Medicine.	
ELISHA HALL GREGORY. Histology and Embryology.	
GEORGE HAVEN. Gynaecology.	
HENRY JACKSON. Clinical Medicine.	
JOHN HILDRETH MCCOLLOM. Contagious Diseases.	
GEORGE HOWARD MONKS. Clinical Surgery.	
JOHN CUMMINGS MUNRO. Surgery.	

CHARLES ALLEN PORTER. Surgery.	} To be Instructors. June 18, 1898.
ABNER POST. Syphilis.	
HENRY PARKER QUINCY. Histology.	
EDWARD REYNOLDS. Obstetrics.	
GEORGE GRAY SEARS. Clinical Medicine.	
EDWARD WYLLYS TAYLOR. Neuropathology.	
BENJAMIN TENNEY. Anatomy.	
HERMAN FRANK VICKERY. Clinical Medicine.	
FRANCIS SEDGWICK WATSON. Genito-Urinary Surgery.	
CHARLES FRANCIS WITHINGTON. Clinical Medicine.	} To be Clinical Instructors. June 18, 1898.
JAMES HOMER WRIGHT. Pathology.	
HENRY HARRIS AUBREY BEACH. Surgery.	
ALGERNON COOLIDGE, Jr. Laryngology.	
EDWARD COWLES. Mental Diseases.	
THOMAS AMORY DEBLOIS. Laryngology.	
JOHN WOODFORD FARLOW. Laryngology.	
GEORGE WASHINGTON GAY. Surgery.	
JOHN HOMANS. Diagnosis and Treatment of Ovarian Tumors.	
PHILIP COOMBS KNAPP. Diseases of the Nervous System.	} To be Demonstrators. June 18, 1898.
EDWARD BINNEY LANE. Mental Diseases.	
GEORGE LINCOLN WALTON. Diseases of the Nervous System.	
EDWARD HALL NICHOLS. Surgical Pathology.	
ALFRED LUDWIG THEODOR SCHAPER. Histology and Embryology.	
JOHN LINCOLN AMES. Histology.	
ALFRED WILLIAM BALCH. Pharmacology.	
JOHN BAPTIST BLAKE. Anatomy.	
FREDERICK EDWARD CHENEY. Ophthalmology.	
ALLEN CLEGHORN. Physiology.	} To be Assistants. June 18, 1898.
WILLIAM MERRITT CONANT. Clinical and Operative Surgery.	
JOHN NELSON COOLIDGE. Bacteriology.	
GEORGE ARTHUR CRAIGIN. Diseases of Children.	
EUGENE ANTHONY CROCKETT. Otology.	
EUGENE ABRAHAM DARLING. Bacteriology.	
EDWIN WELLES DWIGHT. Clinical Surgery.	
CARL ADOLPH EWALD. Physiological Chemistry.	
PHILIP HAMMOND. Otology.	
HENRY FOX HEWES. Chemistry.	}
FRANK ALBERT HIGGINS. Obstetrics.	
EDWIN EVERETT JACK. Ophthalmology.	
JAMES OSCAR JORDAN. Materia Medica.	
ELLIOTT PROCTOR JOSLIN. Physiological Chemistry.	

HARRIS KENNEDY. Physiology.
AUGUSTUS SMITH KNIGHT. Clinical Medicine.
ROBERT GARDNER LORING. Anatomy.
HOWARD AUGUSTUS LOTHROP. Anatomy.
ROBERT WILLIAMSON LOVETT. Clinical Surgery.
FRED BATES LUND. Anatomy.
GEORGE BURGESS McGRATH. Pathology.
ALBERT MATTHEWS. Physiology.
SAMUEL JASON MIXER. Operative Surgery.
GEORGE HOWARD MONKS. Operative Surgery.
JOHN LOVETT MORSE. Clinical Medicine.
JAMES GREGORY MUMFORD. Clinical Surgery.
FRANKLIN SPILMAN NEWELL. Obstetrics.
EDWARD HALT NICHOLS. Pathology.
JAY BERGEN OGDEN. Chemistry.
CHARLES FAIRBANK PAINTER. Surgical Pathology.
EDWARD REYNOLDS. Gynecology.
MARK WYMAN RICHARDSON. Pathology.
CHARLES LOCKE SCUDDER. Clinical and Operative Surgery.
MYLES STANDISH. Ophthalmology.
ARTHUR KINGSBURY STONE. Bacteriology.
JOHN BAKER SWIFT. Gynecology.
PAUL THORNDIKE. Genito-Urinary and Clinical Surgery.
ARTHUR HOWARD WENTWORTH. Pathology and Diseases of Children.
CHARLES JAMES WHITE. Dermatology.
FREDERICK ADAMS WOODS. Histology.
ERNEST BOYEN YOUNG. Anatomy.

To be Assistants.

June 15, 1898.

DWIGHT MOSES CLAPP, to be Clinical Lecturer in Operative Dentistry. June 15, 1898.
GEORGE HOWARD MONKS, to be Instructor in Surgical Pathology. June 15, 1898.
PATRICK WILLIAM MORIARTY, to be Instructor in the Mechanical Treatment of Fractured Jaws and Cleft Palate. June 15, 1898.
EDWARD WYLLYS TAYLOR, to be Instructor in Neurology. June 15, 1898.
NATHAN PRINDLE WYLLIE, to be Instructor in Materia Medica and Anaesthesia. June 15, 1898.

HARRY OLIVER BIXBY.
ALLEN STANLEY BURNHAM.
ASHER HARRIMAN ST. CLAIR CHASE.
HAROLD DEWITT CROSS.
ARTHUR WARREN ELDRED.
HARRY WEST HALEY.
THOMAS BERNARD HAYDEN.

To be Instructors in Mechanical Dentistry. June 15, 1898.

EDWIN CARTER BLAISDELL.
 WILLIAM ALLEN BROOKS.
 FREDERICK BRADLEY.
 FORREST GREENWOOD EDDY.
 CHARLES EDWIN PARKHURST.
 EZRA FLETCHER TAFT.
 FRANK TURNER TAYLOR.
 HENRY LAURISTON UPHAM.
 WALTER HARRIS WHITE.

To be Instructors in Operative
 Dentistry. June 15, 1898.

PATRICK WILLIAM MORIARTY, to be Demonstrator of Mechanical Dentistry.
 June 15, 1898.

JOSEPH TOTTEN PAUL, to be Demonstrator of Operative Dentistry. June 15,
 1898.

EDWARD LINWOOD FARRINGTON, to be Assistant Demonstrator of Operative
 Dentistry. June 15, 1898.

ROBERT JOHN McMEKIN, to be Assistant Demonstrator of Mechanical Dentistry.
 June 15, 1898.

NEWTON SAMUEL BACON, to be Assistant in Chemistry. June 15, 1898.

WILLIAM ORISON UNDERWOOD, to be Lecturer on Warranty and Evidence.
 September 27, 1898.

LESTER HEARD HOWARD, to be Clinical Lecturer. September 27, 1898.

FRANK INGERSOLL PROCTOR, to be Instructor in Ophthalmology. September
 27, 1898.

JOHN LINCOLN AMES, to be Assistant in Histology. September 27, 1898.

JAY BERGEN OGDEN, to be Assistant in Chemistry. September 27, 1898.

ALBERT JAMES SHELDON, to be Instructor in Meat Inspection and Assistant
 Surgeon at the Hospital. September 27, 1898.

MINUTE ON THE CORPORATION RECORDS CONCERN- ING THE SERVICES AND GIFTS OF ALEXANDER AGASSIZ.

Voted, That in accepting from Mr. Alexander Agassiz the deed of gift
 which has been read, and which will be entered in full on the record of
 this date, the Corporation wish to enter on their records a statement of Mr.
 Agassiz's services and gifts to the Museum of Comparative Zoölogy:—

From 1860 to 1865 Mr. Agassiz was Agent of the Museum and Assistant
 in charge of Worms, Echinoderms, and Acalepha.

During part of the year 1866 he was in charge of the Museum while
 Professor Agassiz was absent in Brazil. In 1869 on his return from a
 three years' residence at Calumet, he was appointed Assistant in charge
 of Radiates but without salary. Early in 1874 he was made a member
 of the Faculty of the Museum, Curator, and a member of the Board
 of Trustees. In 1876 the Museum was transferred to the University
 by its Trustees. Mr. Agassiz has never received any salary as Curator.

Between September 1, 1871 and September 1, 1897, Mr. Agassiz expended for the benefit of the Museum from his private means, without making any communication on the subject to the President and Fellows over seven hundred and fifty thousand dollars, including his expenditures on objects now formally transferred to the Corporation beside contributing about fifty thousand dollars to other University objects in gifts known at the time to the President and Fellows.

The great sum expended for the Museum is divisible into the following items which are taken from Mr. Agassiz's private accounts:—

Land, Buildings, and Fixtures	\$219,007.00
Cases, Collections and care of same	223,867.00
Publications	118,127.00
Subscriptions to Agassiz Memorial Fund and for state grants (conditional)	65,000.00
Library	26,695.00
Salaries	27,051.00
Deficits Humboldt Fund (Students)	8,260.00
Fuel	7,807.00
Interest	9,568.00
Laboratory Supplies	3,100.00
Naples Table	1,473.00
Wood's Hole Fish Commission Tables	500.00
F. C. Gray Bust	335.00
Not analyzed; old accounts not accessible	41,008.28
	<hr/>
	\$751,818.28

Of the total expenditure about \$107,000 was for current expenses or expenses which cannot now be specified; the remainder is represented to-day by important parts of the land, building funds, collections, cases, fixtures, publications, and library.

The Corporation record here their gratitude for these great gifts, distributed over a period of twenty-six years, and for devoted services rendered to the Museum in various capacities ever since 1860, with one interval of three years, 1866–1869.

**STATISTICS IN REGARD TO MEMBERS OF THE CLASS OF 1897
WHO RECEIVED DEGREES WITH DISTINCTION.**

There were 143 such students: three of these were Graduate Students, and 18 others received their degrees at the end of three years of residence. Of these 143 students, 106 completed, during their residence as undergraduates in Harvard College, more than the required number of courses, exclusive of extra admission subjects, as follows:—

Number of Students.	Courses more than required.
18	$\frac{1}{2}$
23	1
12	$1\frac{1}{2}$
21	2
11	$2\frac{1}{2}$
12	3
1	$3\frac{1}{2}$
3	4
4	$4\frac{1}{2}$
1	5
0	$5\frac{1}{2}$
1	6
<hr/> 106	

**STATISTICS IN REGARD TO MEMBERS OF THE CLASS OF 1898
WHO RECEIVED DEGREES WITH DISTINCTION.**

There were 132 such students: three of these were Graduate Students, and 29 others received their degrees at the end of three years of residence. Of these 132 students, 86 completed, during their residence as undergraduates in Harvard College, more than the required number of courses, exclusive of extra admission subjects, as follows:—

Number of Students.	Courses more than required.
14	$\frac{1}{2}$
18	1
10	$1\frac{1}{2}$
8	2
11	$2\frac{1}{2}$
3	3
4	$3\frac{1}{2}$
5	4
5	$4\frac{1}{2}$
0	5
0	$5\frac{1}{2}$
0	6
3	$6\frac{1}{2}$
<hr/> 86	

STATISTICS IN REGARD TO MEMBERS OF THE CLASS OF 1898 WHO RECEIVED DEGREES WITH DISTINCTION.

1. Magna cum. 3½ extra courses.	2. Summa cum. 3½ extra courses.	3. Cum. 3½ extra courses.	4. Cum. 3½ extra courses.	5. Summa cum. 4 extra courses.	6. Magna cum. 4 extra courses.
English A " C ^h f. " 22	Greek C Latin C " 1	Greek B Latin C English A	Greek A English A " C ^h f.	Semitic 1 Greek A " C " E ^h f.	Greek B " E ^h f. Latin B " 1
German F ^h f. " 2 " 3 ^h f.	English A " B ^h f. " C ^h f.	" B ^h f. " C ^h f. " 3 ^h f.	" 1 " 2 " 3 ^h f.	" 2 " 8 Latin D	English A " C ^h f. " 22
French 1a " 2c	" 2 German A " F ^h f.	" 7 ^h f. " 9 ^h f. " 28 ^h f.	" 5 " 8 ^h f. " 11 ^h f.	" E ^h f. " 1 Class. Phil. 54	" 22 German A " E ^h f.
Italian 1 " 4	" 1a " 2	" 28 ^h f. German E ^h f. " F ^h f.	" 8 ^h f. " 11 ^h f. " 11 ^h f.	" 1 Class. Phil. 54 English A	" E ^h f. " C ^h f. " 1b
Spanish 1 Philosophy 1 (14)	French 1c " 2a	" F ^h f. " G ^h f. " 1a	" 23 German C " 4	" C ^h f. " 22 German 3	" 4 " 6 ^h f. " 8
" 5 " 6 ^h f.	" 4 ^h f. " 6	" 3 " 5	" 5 French A History 1	" 8 Philosophy 1 " 1 ^h f.	" 8 French 1a " 6c
" 13 ^h f.	" 7 ^h f. " 7 ^h f.	" 10 ^h f. " 11 ^h f.	" 4 Fine Arts 1 " 4	" 8 Philosophy 1 " 1 ^h f.	Philosophy 1a " 18 ^h f.
History 1 " 12 ^h f.	" 9 " 13	" 11 ^h f. " 11 ^h f.	Music 1 " 8 Mathemat. B ^h f.	" 4 " 8 ^h f. " 9	History 1 Government 1 ^h f.
" 13 Government 1 ^h f.	Italian 1 Philosophy 1	French 2c Philosophy 1	" 4 Mathemat. D ^h f.	" 11 ^h f. History 7	Economics 1 Mathemat. A ^h f.
Economics 1 Fine Arts 4	" 1 ^h f. Fine Arts 4	History 1 " 10	Physics C Botany 1 ^h f.	" 8 ^h f. Economics 1	" B ^h f. " E ^h f.
Mathematics F Physics C	Mathemat. A ^h f.	" 12 ^h f.	Zoology 1 ^h f.	" 3 ^h f. Fine Arts 3 ^h f.	Astronomy 1 ^h f.
Geology 4 ^h f.	" D ^h f. " E ^h f.	" 13 Government 1 ^h f.	Geology 4 ^h f.	" 8 ^h f. " 8 ^h f.	Physics 1 Zoology 1 ^h f.
		Economics 1 Geology 3 ^h f.	" 5 ^h f.		Geology 4 ^h f.
		" 4 ^h f.			Hygiene 1 ^h f.
		Astronomy 1 ^h f.			B+

7. Magna cum. 4 extra courses.	8. Cum. 4 extra courses.	9. Magna cum. 4 extra courses.	10. Magna cum. 4 extra courses.	11. Magna cum. 4 extra courses.	12. Magna cum. 4 extra courses.
Greek <i>D</i> " 2 Latin <i>D</i> " 1 English <i>A</i> " <i>C hf.</i> " 8 ¹ <i>hf.</i> " 10 <i>hf.</i> " 22 " 30 German <i>F hf.</i> " 2 " 7 " 10 <i>hf.</i> French 1a " 6 Phil. 1 (14 cour.) History 1 " 10 " 12 ² " 13 Government 4 " 7 ² <i>hf.</i> Economics 1 " 7 ¹ <i>hf.</i> " 9 Fine Arts 4 Mathematics <i>C</i> Mil. Sci. 1 ¹ <i>hf.</i>	English <i>A</i> " 6 <i>hf.</i> " 8 ¹ <i>hf.</i> " 8 ² <i>hf.</i> " 10 <i>hf.</i> " 22 " 30 German <i>F hf.</i> " 2 " 7 " 10 <i>hf.</i> French 1a " 2c History 1 " 11 " 12 ¹ <i>hf.</i> " 12 ² <i>hf.</i> " 13 Government 1 ¹ <i>hf.</i> " 4 " 5 " 7 ² <i>hf.</i> Economics 1 " 9 " 14 " 15 Fine Arts 3 ¹ <i>hf.</i> Geology S1 <i>hf.</i>	Greek <i>D</i> Latin <i>D</i> " 2 English <i>A</i> " <i>C hf.</i> " 10 <i>hf.</i> " 22 German <i>A</i> " <i>E hf.</i> " 1b " 6 French 1c Philosophy 1 History 1 " 8 " 9 " 12 ¹ <i>hf.</i> " 12 ² <i>hf.</i> " 13 Government 1 ¹ <i>hf.</i> " 4 Economics 1 " 2 " 6 Engineering 1b <i>hf.</i> Geology 4 <i>hf.</i>	English <i>A</i> " <i>C hf.</i> " 2 " 5 " 6 <i>hf.</i> " 7 ¹ <i>hf.</i> " 7 ² <i>hf.</i> " 9 <i>hf.</i> " 10 <i>hf.</i> " 11 ¹ <i>hf.</i> " 11 ² <i>hf.</i> " 12 " 15 ² <i>hf.</i> " 22 " 28 <i>hf.</i> German <i>A</i> " 1a French 1c " 2c " 6 " 14 Philosophy 1 " 16 " 18 <i>hf.</i> History 1 Government 1 ¹ Economics 1 Fine Arts 4 Geology 4 <i>hf.</i>	Semitic 1 " 2 " 3 ² <i>hf.</i> " 4 " 6 <i>hf.</i> " 12 " 13 " 13 <i>hf.</i> " 15 " 16 " 16 <i>hf.</i> Greek <i>D</i> " 2 English <i>A</i> " <i>B hf.</i> " <i>C hf.</i> German 1a " 4 " 7 French <i>A</i> Philosophy 1 " 6 <i>hf.</i> " 13 <i>hf.</i> History 1 Economics 1 " 9 Chemistry <i>B</i>	Greek <i>D</i> " <i>E hf.</i> Latin <i>C</i> " <i>E hf.</i> " 2 ² <i>hf.</i> English <i>A</i> " <i>C hf.</i> " 11 ¹ <i>hf.</i> " 11 ² <i>hf.</i> " 22 German <i>A</i> " <i>E hf.</i> " 1b " 4 French 1b History 1 " 10 " 12 ¹ <i>hf.</i> " 12 ² <i>hf.</i> " 13 " 19 ¹ <i>hf.</i> Government 1 ¹ <i>hf.</i> " 4 " 7 ² <i>hf.</i> Economics 1 Mathemat. <i>D hf.</i> Hygiene 1 ² <i>hf.</i>

STATISTICS IN REGARD TO SCHOLARSHIP HOLDERS OF THE FIRST AND SECOND GROUPS (*THE SECOND GROUP INCLUDES HOLDERS OF SCHOLARSHIPS WITH STIPENDS ONLY*) ACCORDING TO THE CATALOGUE FOR 1897-98.

In Group I there were 36 scholars of whom 32 took, exclusive of extra admission subjects, more than the required work during their residence of four, three, or two years, respectively:—

Seniors.	Juniors.	Sophomore.	Total.	Courses more than required.
2	0	0	2	$\frac{1}{2}$
2	2	1	5	1
1	0	1	2	$1\frac{1}{2}$
0	2	3	5	2
1	1	0	2	$2\frac{1}{2}$
1	0	2	3	3
2	2	0	4	$3\frac{1}{2}$
3	0	0	3	4
1	3	0	4	$4\frac{1}{2}$
0	0	0	0	5
0	0	0	0	$5\frac{1}{2}$
0	0	0	0	6
2	0	0	2	$6\frac{1}{2}$
<hr/>	<hr/>	<hr/>	<hr/>	
15	10	7	32	

In Group II (holders of scholarships with stipends only) there were 71 scholars of whom 59 took, exclusive of extra admission subjects, more than the required work during their residence of four, three, or two years, respectively:—

Seniors.	Juniors.	Sophomores.	Total.	Courses more than required.
3	0	9	12	$\frac{1}{2}$
6	1	7	14	1
1	3	1	5	$1\frac{1}{2}$
1	3	5	9	2
2	2	5	9	$2\frac{1}{2}$
4	2	0	6	3
0	2	0	2	$3\frac{1}{2}$
1	1	0	2	4
1	0	0	1	$4\frac{1}{2}$
0	0	0	0	5
<hr/>	<hr/>	<hr/>	<hr/>	
19	13	27	59	

**STATISTICS IN REGARD TO SCHOLARSHIP HOLDERS OF THE
FIRST AND SECOND GROUPS ACCORDING TO THE CATA-
LOGUE FOR 1898-99.**

Number of students in Group I who, according to their present list of electives, will have taken at the end of the current academic year, exclusive of extra admission subjects, more than the required work during their residence of four, three, or two years respectively:—

Total number of First Group Scholars = 42.

Seniors.	Juniors.	Sophomores.	Total.	Courses more than required.
3	0	1	4	$\frac{1}{2}$
0	0	2	2	1
0	0	1	1	$1\frac{1}{2}$
2	1	1	4	2
1	2	8	11	$3\frac{1}{2}$
1	3	1	5	3
1	0	1	2	$3\frac{1}{2}$
2	2	0	4	4
2	2	0	4	$4\frac{1}{2}$
0	0	0	0	5
1	0	0	1	$5\frac{1}{2}$
0	0	0	0	6
0	0	0	0	$6\frac{1}{2}$
<hr/> 18	<hr/> 10	<hr/> 15	<hr/> 43	

[The remaining 4 students in the First Group did only the amount of work required.]

In Group II there are 138 scholars of whom 119* will, according to their present lists of electives, have taken at the end of the current academic year, exclusive of extra admission subjects, more than the prescribed work during their residence of four, three, or two years, respectively:—

Seniors.	Juniors.	Sophomores.	Specials.	Total.	Courses more than required.
5	6	2	0	13	$\frac{1}{2}$
8	5	4	0	17	1
1	8	5	0	14	$1\frac{1}{2}$
8	5	4	0	17	2
9	3	9	0	21	$2\frac{1}{2}$
9	3	2	0	14	3
1	1	0	1	3	$3\frac{1}{2}$
5	2	0	1	8	4
3	0	0	0	3	$4\frac{1}{2}$
6	0	0	0	6	5
0	0	0	0	0	$5\frac{1}{2}$
1	0	0	0	1	6
1	1	0	0	2	$6\frac{1}{2}$
<hr/> 57	<hr/> 34	<hr/> 26	<hr/> 3	<hr/> 119	

* Omitting one Sophomore who has elected twenty-two courses during a residence of several years as a Special Student.

DEED OF GIFT FROM ALEXANDER AGASSIZ TO THE PRESIDENT AND FELLOWS.

I, Alexander Agassiz of Cambridge, in consideration of one dollar and other good and valuable considerations to me paid by the President and Fellows of Harvard College, the receipt whereof is hereby acknowledged, do hereby give, grant, and convey to the said President and Fellows the following described articles of personal property now belonging to me and contained in or used in connection with the Museum of Comparative Zoölogy, viz: —

Such collections as I have brought together on various expeditions to the West Indies, Central America, and in the Pacific.

The collections made by Mr. Garman and myself at Lake Titicaca.

The collection of Corals from the Great Barrier Reef of Australia made by Professor H. A. Ward.

The Zoölogical collection purchased from Professor Ward, the greater part of which are on exhibition in the Systematic and Faunal rooms.

The Osteological collections obtained from Messrs. Gerrard and Ward which are partly on exhibition and partly stored in the work-rooms.

My collection of Japanese Vertebrates and Invertebrates.

The collection of Casts and Models purchased from Messrs. Emerton, Damon, Fritsch, Kappeler, Cope, from the Royal Museum at Brussels, and others.

The collection of Blaschka Models of Marine Invertebrates.

The Microscopes and other Laboratory apparatus which I have at various times given to the Zoölogical and the Geological Departments.

The collections of fossil Invertebrates comprising the Day collection from the Niagara Limestone of Wisconsin, the Dyer collection of Invertebrates from Ohio, the Gebhard collection from Schoharie, the Taylor collection of fossil Cephalopods, the Terrell collection of fossil Fishes, the Walcott collection from the Trenton Limestone, as well as a number of smaller collections purchased from dealers in the United States.

The Schary collection of Silurian fossils, the Haeberlein collection of Jurassic fossils and a small collection of fossil Vertebrates obtained from Mr. Rossignol.

The collections of Western fossil Vertebrates made for me by Messrs. Garman, Sternberg, and others, as well as the collection of South American fossil Edentates, and the fossils purchased from Professor Ward.

All the copies remaining on hand of the Volumes of the Bulletin (Vols. IV to XXXII), and of the Memoirs (Vols. III to XXIII) of the Museum which I printed for the use of the Museum.

All the publications received in exchange for the *Bulletins and Memoirs* of the Museum, about 3,500 volumes now in the Museum Library (except those specifically reserved and deposited in my work-room) and the books which I have purchased during the past twenty years; about 5,000 volumes.

To Have And To Hold the premises to the said President and Fellows of Harvard College, their successors and assigns to their use forever.

Witness my hand and seal this thirty-first day of March, 1898.

(Signed) ALEXANDER AGASSIZ. (Seal)

CONDITIONS OF THE GIFT OF ALEXANDER AGASSIZ.

The conditions of the gift named by Mr. Agassiz are as follows:—

I will give to the President and Fellows of Harvard College for the use of the Museum of Comparative Zoölogy all the collections which I have at present deposited in the Museum or which I may acquire hereafter, as well as such books as are not for the present reserved for my use, on the following terms:—

Hoping hereafter to devote my time to explorations and to the publications of the Reports of these explorations in the *Bulletin and Memoirs* of the Museum, I ask

1. That the assistants of the Museum Library supervise as heretofore the distribution of these publications both to Societies and to individuals as I may direct.

2. That I be allowed to take from the exchanges for my use such books as I may select.

3. That the janitor and servants of the Museum continue to render to me such service as they were accustomed to give me while officially connected with the Museum.

4. That I be allowed to use the Museum Library, the greater part of which is my personal property, in the same manner as heretofore, and that such books as I may select and retain in my room be considered for the present my private property, subject to the same use as is now customary by the Officers and Students at the Museum.

5. That I be allowed to occupy the room where I now work, to continue the preparation of the Reports of the Albatross Expedition and of such expeditions as I may hereafter undertake.

6. That the Museum continue to pay the salary of my Secretary and that her services be at my disposal as they have been in the past, either during my residence at Cambridge or at Newport or during my absences from Cambridge.

7. That my artists be allowed to occupy the rooms they now use or some other equally convenient place to prepare the illustrations for the above mentioned Reports.

8. That I be allowed to continue the arrangement now existing between myself and Messrs. W. McM. Woodworth and A. G. Mayer or their successors, by which they may devote such time as they do not give to the Museum to the interests of my explorations either at the Museum or as assistants during my explorations.

That any assistants I may find it necessary to employ on the care of the collections made during my expeditions or on the preparations of the material for publication be assigned suitable quarters in the Museum building.

9. That I be allowed to store the outfit used on my expeditions in the Basement of the Museum.

Upon receiving from the Corporation notice of their acceptance of the above conditions I will execute a deed of gift covering the collections and books referred to in this letter.

(Signed) ALEXANDER AGASSIZ.

TABLE I.

ILLNESS REPORT, 1897-98.

Diseases.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total.
Colds, etc.	44	84	69	99	65	132	94	65	3	655
Scarlet Fever . . . . .	..	..	..	..	1	1	..	..	..	2
Diphtheria . . . . .	..	1	2	..	..	1	1	..	..	5
Typhoid Fever	3	2	..	1	..	1	..	..	..	7
Measles . . . . .	..	1	..	..	4	1	4	1	..	19
Mumps . . . . .	..	..	4	2	..	50	34	1	..	95
Headache	3	10	9	6	4	8	7	4	..	51
Overwork	1	4	3	1	3	4	1	..	1	18
Injuries	18	11	8	10	8	15	11	18	2	102
"At Home,"	4	3	..	..	11	8	2	4	..	27
Miscellaneous*	57	79	80	64	57	121	61	68	8	595
Total	127	199	175	191	157	337	215	161	14	1576
Cases carried over from preceding month . . . .	..	32	41	72	11	64	111	47	5	403
Number days illness . . .	598	1061	1325	1174	1472	2337	3116	976	47	
Average days confinement .	4.7	4.6	6.1	4.5	7.8	5.8	9.5	4.7	2.5	
Av. number ill at one time .	19.3	35.4	57.6	40.5	52.6	75.4	129.8	31.5	1.6	
Maximum number ill at one time over three days . .	31	48	72	46	74	121	132	11	4	
No. who went home	44	53	52	46	67	129	72	12	3	
No. who stayed in C. . . .	83	146	123	145	90	208	143	99	11	
No. non-contagious cases in C.	111	146	120	137	84	196	119	95	11	
No. contagious cases in C. .	1	..	3	8	6	12	24	4	..	
Av. number ill at one time in C.	12.6	22.4	32.6	22.5	25.1	38.9	56.6	15.0	.9	
Max. number ill at one time in C. over three days . .	17	27	47	23	32	45	11	12	2	
Visits to students in rooms										1128
Calls at rooms, students out										206
Consultations at L. S. S.										1240

* Appendicitis, Malaria, Neuralgia, Rheumatism, Vaccination, affections of the Eye, Heart, Stomach and Intestines (except Typhoid Fever), etc.

TABLE II.

CASES OF ILLNESS FOR THE YEARS 1894-5, 1895-6, 1896-7, AND 1897-8.

Diseases.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total
Colds, etc.: 1894-5	2	69	107	63	172	206	226	99	96	8	1043
1895-6	.	92	110	118	141	172	215	99	62	2	1005
1896-7	.	70	97	117	106	182	198	101	100	4	931
1897-8	.	44	84	69	99	65	132	94	65	3	655
Scarlet Fever: 1894-5	2	.	.	.	7	3	12
1895-6	.	.	1	.	1	.	.	.	.	.	2
1896-7	1	.	2	1	.	4
1897-8	1	1	.	.	.	2
Diphtheria: 1894-5	2	.	1	.	.	.	3
1895-6	.	1	.	.	.	1	1	.	.	.	3
1896-7	.	.	.	2	.	.	.	.	.	.	2
1897-8	.	.	1	2	.	.	1	1	.	.	5
Typhoid Fev.: 1894-5	.	3	8	.	1	.	.	.	.	.	7
1895-6	.	3	.	1	1	1	.	1	1	.	8
1896-7	.	6	2	.	1	.	.	.	.	.	9
1897-8	.	3	2	.	1	.	1	.	.	.	7
Measles: 1894-5	3	17	11	.	21
1895-6	.	.	.	1	1	4	5	6	1	3	21
1896-7	.	2	2	1	4	11	6	6	15	1	47
1897-8	.	.	1	.	8	4	1	4	1	.	19
Mumps: 1894-5	2	28	25	9	1	65
1895-6	4	5	8	3	.	20
1896-7	.	.	.	1	.	1	1	1	4	3	11
1897-8	.	.	.	4	2	4	50	11	1	.	95
Headache: 1894-5	.	9	11	7	16	7	11	11	11	.	90
1895-6	.	8	11	20	15	15	17	18	15	.	117
1896-7	.	5	17	8	16	12	15	5	10	.	88
1897-8	.	3	10	9	11	4	8	7	4	.	71
Overwork: 1894-5	.	.	1	4	2	1	1	.	.	.	9
1895-6	.	4	5	.	.	6	4	7	1	1	28
1896-7	.	2	2	1	2	4	4	1	1	.	19
1897-8	.	1	1	3	1	3	4	1	.	1	18
Injuries: 1894-5	.	10	9	2	12	5	9	14	17	.	78
1895-6	.	36	20	17	17	16	12	20	18	2	158
1896-7	.	18	25	8	11	13	9	11	7	2	104
1897-8	.	15	15	8	10	8	15	11	11	2	102
"At Home": 1894-5	3	10	30	35	44	53	48	37	8	.	306
1895-6	.	10	11	10	13	15	13	3	.	.	76
1896-7	.	7	11	10	6	8	10	10	4	4	68
1897-8	.	4	8	.	.	11	8	2	4	.	47
Miscellaneous: 1894-5	.	64	62	85	46	67	86	81	91	3	535
1895-6	1	110	165	108	81	135	155	85	79	1	920
1896-7	.	72	108	95	74	52	121	118	83	10	703
1897-8	.	57	79	80	111	57	111	61	68	8	595
TOTALS: 1893-4	.	49	98	138	119	54	144	57	31	.	685
1894-5	5	203	223	140	297	341	419	284	241	10	2169
1895-6	1	211	326	275	270	369	427	237	170	9	2358
1896-7	.	191	262	243	220	234	360	190	194	14	2018
1897-8	.	127	100	175	191	157	337	215	161	14	1576

TABLE III.

	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
Number days illness:										
1894-95	23	1401	1518	1201	1591	1303	2506	1935	1065	4
1895-96	2	1112	1982	1958	1004	2408	2975	3124	1189	45
1896-97		966	1906	1619	1265	1700	2780	1838	1419	86
1897-98		598	1061	1175	1174	1472	2337	1110	976	47
Average days confinement:										
1894-95	4.6	6.9	6.1	8.2	5.2	3.7	5.6	6.7	4.4	4.
1895-96	1.0	4.2	6.1	7.1	6.1	6.6	6.9	8.9	6.3	5.
1896-97		5.1	5.8	5.6	4.5	7.8	5.8	5.1	6.4	1.6
1897-98		4.7	4.6	6.1	4.5	7.8	5.8	9.5	4.7	2.5
Number non-contagious diseases in Cambridge:										
1894-95	1	170	199	107	212	260	304	175	200	8
1895-96	1	213	272	244	221	263	338	174	151	5
1896-97		145	218	219	205	165	247	218	120	30
1897-98		82	146	120	137	111	196	119	95	11
Number contagious diseases in Cambridge:										
1894-95					2		16	26	7	4
1895-96						4	5	4	55	2
1896-97		3		2	2	5	3	2	10	4
1897-98		1		3	8	6	12	24	4	
Average number ill at one time in Cambridge:										
1894-95	1.	37.8	40.5	38.3	38.6	37.1	62.8	62.6	10.4	5.
1895-96	1.	28.9	55.1	69.4	45.2	60.2	77.2	66.6	32.9	1.8
1896-97		24.8	46.3	55.1	31.1	47.2	55.1	46.6	27.1	1.9
1897-98		12.6	22.2	32.6	22.5	25.1	38.9	56.6	15.0	.9
Maximum number ill at one time in Cambridge over three days:										
1894-95										
1895-96		38	48	48	47	51	66	55	41	21
1896-97		30	39	46	33	73	72	57	26	16
1897-98		17	27	31	23	32	45	46	12	2
Visits to students in rooms:	Calls at rooms, students out:			Consultations at L. S. S.:						
1894-95 660	1894-95 300			1894-95 600						
1895-96 780	1895-96 180			1895-96 800						
1896-97 1159	1896-97 216			1896-97 1047						
1897-98 1128	1897-98 206			1897-98 1240						
"At Home":	Total cases of illness:									
1894-95 306	1894-95 2169									
1895-96 76	1895-96 2338									
1896-97 68	1896-97 2016									
1897-98 27	1897-98 1576									

MEDICAL VISITATION.

HARVARD UNIVERSITY, CAMBRIDGE, Oct. 1897.

Students who are confined to their rooms by illness should send reports to the office (University Hall) before 10 A.M. They will then be visited before one o'clock. The nature of the illness and the degree of urgency should be stated, also the number of the room in the building. Reports requiring immediate attention should be sent by a messenger and not by mail.

CONSULTATION.—The Medical Visitor may be consulted as follows:

8.45–9 A.M. Physiological Laboratory, L.S.S., East wing (daily except Sunday).

4–5 P.M. L.S.S. (except Saturday and Sunday).

Saturday 12.45–1.15 P.M., L.S.S.

Sunday 9.30–10 A.M., 7 Scott St.

☞ Students able to go out are expected to utilize the regular consultation hours.

EMERGENCIES.—After 8 A.M. and before 5.30 P.M., L.S.S.

It should be remembered that chills and headache suggest fever, and that one who has fever usually feels better in the morning, but worse again at night. It is well to consult or report early, for it may lead to the detection of serious or contagious illness, and permit favorable arrangements to be made as to nursing, meals, going home, etc. Any *rash* or *eruption* should be *immediately reported*. The services of the Medical Visitor are gratuitous, and are for the benefit and protection of the student community.

The Regulations require students to report at the Office when they resume work.

MODIFIED SCHEME FOR CARRYING ON THE DINING HALL ASSOCIATION IN MEMORIAL HALL.

Adopted by the Corporation April 25th, 1898.

1. All persons connected with the University who board at the Dining Hall shall constitute an Association.

2. The officers of the Association shall be a President and ten Directors, six chosen at large from Harvard College and the Lawrence Scientific School taken together, two from the Law School, one from the Graduate School, and one from the Divinity School.

3. The President shall be chosen by the Association at large, the Directors by the several bodies of members mentioned in the preceding section. The officers shall be elected for one year; but shall continue to perform their duties until their successors are chosen. Vacancies occurring during the year shall be filled by similar elections for the unexpired part of the year.

4. There shall be two elections each year, — the first in February shortly after the mid-year examinations, at which election there shall be chosen the President, three Directors from the College and Scientific School taken together, one Director from the Law School, and one Director from the Divinity School. The President shall be elected during the first week after the mid-year examinations, and the Directors during the week following. The second election shall be held during the second week in June, when there shall be chosen three Directors from the College and Scientific School taken together, one Director from the Law School, and one Director from the Graduate School.

5. The President and Directors shall regulate the diet of the Hall, preserve order and exercise a general control over the expenditures of the Association subject only to the restrictions laid down in this Scheme; they shall have power to suspend or expel from the Association persons who are guilty of disorderly conduct, and to fix the rate of payment that shall be charged to suspended persons during the time of suspension.

6. The following rules are to be observed: —

(1) No wine, beer or other alcoholic drink, and no tobacco shall be used in the Hall.

(2) The hours for breakfast, luncheon and dinner shall be regulated according to the Tabular View of the College.

(3) No alcohol, naphtha, benzine, kerosene, or other inflammable liquid shall be used or kept within the building.

(4) No newspapers or magazines shall be sold in any part of Memorial Hall, except within the Dining Hall.

(5) No changes in the disposition of pictures, busts, or other decorations of the Hall, or in the architectural features of the Hall itself, or in the apparatus for heating or lighting, shall be made without the previous consent of the Corporation.

7. The Association shall keep the furniture and equipment good, shall pay six per cent. a year upon the advances made by the Corporation to furnish the kitchen and Hall, and \$1,500 a year toward extinguishing that debt.

8. The Corporation will appoint an Auditor, whose duty it shall be to examine and approve all bills for supplies and service; to satisfy himself, either by his own observation or by that of an assistant employed by the President and Directors, that all goods charged to the Association have been delivered; to keep the weekly list of persons boarding at the Hall;

and the account of allowances for absence; and, in general, to supervise purchases and expenditures, and see that the affairs of the Hall are conducted with economy and precision. The Auditor shall also act as Secretary of the Board of Directors and shall make to them a monthly report of the receipts and expenditures of the Association. His salary shall be fixed by the President and Directors.

The Corporation will appoint a Steward, who shall make all purchases of provisions for the Association, and order all urgent repairs, and shall also employ and direct the servants, and in general shall carry on the Hall. The Steward shall receive a fixed salary of \$1,500 a year, and in addition two and a half cents each week for every person who boarded that week at the Hall, if board should cost not more than \$4 a week (including all charges except this head-money); but this head-money shall be diminished by half a cent for every ten cents increase in the price per week or fraction thereof, if board should cost more than \$4. This rate of compensation shall begin with the year 1898-99. He shall receive no other compensation, commission, allowance, or perquisite whatever; but shall account for all sums which may in any way come into his hands as Steward of the Hall.

The Auditor and the Steward may be dismissed on reasonable notice by the Corporation, and shall be dismissed by them on reasonable notice at the request of two thirds of the officers of the Association.

9. The Corporation will advance from week to week the money to pay the bills of the Association for heating, lighting, service, provisions, etc.; but all such bills shall be approved by the Auditor. The interest on these advances shall be at the rate of six per cent. a year. The whole cost of carrying on the Hall, including the above mentioned charges for advances, shall be assessed by the officers of the Association upon the members thereof, and the amounts thus assessed upon the several members shall be certified by the Auditor, and collected upon the term bills by the Bursar.

10. The Corporation reserve to themselves the power of making from time to time such alterations in this Scheme as may seem to them calculated to promote the success of the Hall upon notice to the President and Directors of not less than one month.

Boston, Mass., November 8, 1898.

TO THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE:—

GENTLEMEN, —I submit for your consideration the following statement concerning Mr. Hooper's trusteeship.

He was chosen treasurer April 12, 1876, was confirmed by the Overseers April 21, 1876, and entered at once upon the duties of the office.

	April 22, 1876. 162	July 31, 1898. 334	Increase. 232
The number of funds and balances in the Treasurer's books was	\$3,139,217.99	\$10,230,260.12	\$7,091,742.13
Their amount was	1875-76.	1897-98.	Increase.
The whole income of the University, excluding all gifts for capital and for immediate use, was	\$496,828.58	\$1,173,952.53	\$677,123.95
The net gains on all sales of	General Investments.	Special Investments.	Total.
The net gains on all sales of	\$212,531.60	\$60,041.03	\$272,572.63
The "gain on all sales" in the preceding items) were	151,298.60	16,911.03	168,209.63
No valuation of special investments held September 1, 1876, was then made.			
	Book Valuation.	Estim. cash value.	Surplus. %
The amount of property belonging to			
Webb Estate dividend, on September	\$2,254,089.50	\$2,365,791.46	\$111,701.96
The amount of property belonging to general investments July 31, 1898, was	8,426,361.05	9,791,164.34	1,365,803.29
the value of the property belonging to general investments			
			\$1,365,803.29
			111,701.96
			\$1,254,101.33
The amount of property now belonging to general investments, which was bought by Mr. Hooper, is	Book Valuation.	Estim. cash value.	Increase.
The amount of property now belonging to special investments, which was bought by Mr. Hooper, is, excluding property bought for University Houses and lands account,	\$7,988,691.29	\$8,783,264.34	\$794,573.05
	331,353.03	354,240.72	\$22,887.70
			%
			10—
			7—

The gains on all sales were, as previously stated, . . . . .	. . . . .	. . . . .	\$272,572.68	
The estimated increase in the value of all the property now belonging to general investments, is, as previously stated, . . . . .	. . . . .	. . . . .	1,254,101.33	
Total increase, excluding increase in the value of property now belonging to special investments, . . . . .	. . . . .	. . . . .	\$1,526,674.01	
The gains on all sales of property bought by Mr. Hooper were, as previously stated, . . . . .	. . . . .	. . . . .	\$168,209.63	
The estimated increase in the value of property, which was bought by Mr. Hooper and is now in possession, is, as previously stated, . . . . .	. . . . .	\$794,573.05	817,470.75	
Total gain to the University from and from increase in the value of property now by Mr. Hooper, excluding property bought for University Houses and Lands account, . . . . .	. . . . .	22,897.70	\$985,680.88	
	Book Valuation.	Estim. cash value.	Surplus.	%
The amount of property belonging to general investments July 31, 1898, was	\$8,425,361.05	\$9,791,164.84	\$1,365,803.29	16+
The amount of property belonging to special investments July 31, 1898, was	1,805,599.07	2,843,555.41	1,037,956.34	57+
Total property belonging to investments July 31, 1898	\$10,230,960.12	\$12,634,719.75	\$2,403,759.63	23+
The amount of gifts, for all purposes, of money and securities received between April 22, 1876 and July 31, 1898, was . . . . .	. . . . .	. . . . .	\$8,485,596.02	
The above amount of gifts includes the following sums transferred at different times by —				
The Trustees of the Museum of Comparative Zoology . . . . .	. . . . .	\$320,011.86		
The Trustees of the Peabody Museum of American Archaeology and Ethnology . . . . .	. . . . .	164,817.30		
The Trustee of the Thayer Scholarships . . . . .	. . . . .	75,087.33	\$559,916.49	
Three pieces of real estate have been received for which no entry was made in the Treasurer's books, viz: — 16 Quincy St., Cambridge; 38 Quincy St., Cambridge; The Soldier's Field, Brighton . . . . .	. . . . .	. . . . .	\$78,000.	
Two buildings have been built by the givers, no part of the money therefor having been received by the Treasurer — Hemenway Gymnasium . . . . .	. . . . .	Estimated value.		
Locker Building (The Soldier's Field) . . . . .	. . . . .	\$100,000	\$210,000.	
The cost of buildings erected from gifts (included in the above statement of gifts) and interest thereon — including part of the original furniture, and three sections of the University Museum, was . . . . .	. . . . .	. . . . .	\$1,563,654.11	
The estimated cost of the North wing of the Museum of Comparative Zoology and of the building of the Peabody Museum of American Archaeology and Ethnology, which have been transferred to the Corporation, was . . . . .	. . . . .	. . . . .	\$515,000.	
The cost of the Gore Hall Extension of 1875-78 and of the improvements of 1895-96 was paid for from the unrestricted University Funds, and amounted to . . . . .	. . . . .	. . . . .	\$119,946.78	

Yours respectfully, ALLEN DANFORTH, Comptroller.

NUMBER OF ORDINARY DEGREES IN 1898.

Bachelors of Arts of the Class of 1898	391
Bachelors of Arts out of course	15
Bachelors of Science	29
Bachelors of Science out of course	10
Bachelors of Divinity	3
Bachelors of Laws	130
Bachelors of Laws out of course	6
Doctors of Medicine	124
Doctors of Medicine out of course	1
Doctors of Dental Medicine	36
Doctors of Veterinary Medicine	10
Masters of Arts	102
Masters of Arts out of course	5
Masters of Science	5
Doctors of Philosophy	26
Total	<u>896</u>

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TREASURER'S STATEMENT.

TO THE BOARD OF OVERSEERS OF HARVARD COLLEGE:—

The Treasurer of the College submits the Annual Statement of the financial affairs of the University, for the year ending July 31, 1898, in the usual form.

The Funds separately invested, with the income thereof, are as follows:—

	UNIVERSITY.	Principal. July 31, 1898.	Income.
George B. Dorr Fund,			
University Houses and Lands,		\$118,968.56	\$4,721.09
Francis E. Parker Fund,			
University Houses and Lands,		118,817.44	4,633.56
John C. Gray Fund,			
University Houses and Lands,		25,000.00	1,017.76
Joseph Lee Fund,			
University Houses and Lands,		10,000.00	407.11
William F. Weld Fund (part of),			
University Houses and Lands,		16,385.46	286.24
Insurance and Guaranty Fund,			
University Houses and Lands,		141,638.74	5,766.21
Stock Account,			
University Houses and Lands,		70,320.11	3,001.75
John Cowdin Fund,			
Real Estate, Charlestown St., Boston,		22,000.00	1,809.12
Walter Hastings Fund,			
Real Estate, Sacramento St., Cambridge,		20,000.00	1,173.05
Harvard Ellis Fund,			
\$3,000 Little Rock & Fort Smith R. R. 1st M. 7's (sold during year),			174.50
1,000 Kansas City, Fort Scott & Memphis R. R. 1st M. 6's (sold during year),			58.83
5,000 Kansas Equipment 1st M. 5's (sold during year),			261.11
10,000 Current River R. R. 1st M. 5's (sold dur- ing year),			550.42
3,000 Chicago, Burl. & Quincy R. R. Conv. 5's (sold during year),			170.83
220 shares Chicago, Burl. & Quincy R. R. (sold during year),			715.00
Amounts carried forward,		\$585,128.31	\$24,746.58

Amounts brought forward, \$535,128.31 \$34,746.58

COLLEGE.

Stoughton Scholarship (part of),		
Real Estate in Dorchester,	1,394.80	175.00
Pennoyer Scholarships (part of),		
Pennoyer Annuity in England,	4,444.44	
Jonathan Phillips' Gift,		
\$10,000 City of Boston 8½'s,	10,000.00	250.00
Samuel Ward's Gift,		
Ward's (Bumkin) Island, Boston Harbor, . . .	1,200.00	25.00
Scholarships of the Class of 1856,		
\$10,000 Frem., Elkhorn & Mo. Valley R.R. 6's, . .	10,000.00	600.00

LIBRARY.

Isabod Tucker Fund (part of),		
Policy of Mass. Hospital Life Insurance Co., . . .	5,000.00	200.00

MEDICAL SCHOOL.

Henry Willard Williams Fund,		
100 shares State Street Exchange (sold during year),		225.00
87 " American Bell Telephone Co. (sold during year),		200.50
22 " Calumet & Hecla Mining Co. (sold during year),		600.00

MUSEUM OF COMPARATIVE ZOOLOGY.

Agassiz Memorial Fund (part of),		
Advances for new building (repaid during year), .		233.63

PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

Peabody Professor Fund,		
\$54,000 Kansas & Missouri R. R. 1st M. 5's (part of),	19,218.64	1,038.64
Peabody Collection Fund,		
\$54,000 Kansas & Missouri R. R. 1st M. 5's (part of),	19,218.64	1,038.64
Peabody Building Fund,		
\$54,000 Kansas & Missouri R. R. 1st M. 5's (part of),	11,512.72	622.32
Thaw Fund,		
\$20,000 Girard Point Storage Co. 1st M. 8½'s, . . .	20,855.98	700.00

SPECIAL FUNDS.

Bussey Trust,		
Real Estate,	392,709.18	25,058.72
Robert Troup Paine Fund (accumulating),		
\$41,000 Massachusetts 8½'s,	48,423.55	1,417.50
Amounts carried forward,	\$1,073,505.76	\$57,529.90

Amounts brought forward,		\$1,073,505.76	\$57,539.99
Fund of the Class of 1834,			
Policy of Mass. Hospital Life Insurance Co., . .	1,000.00		40.00
Fund of the Class of 1844,			
Policy of Mass. Hospital Life Insurance Co., . .	6,500.00		284.85
Fund of the Class of 1853,			
Policy of Mass. Hospital Life Insurance Co., . .	3,725.00		149.00
Charles L. Hancock Bequest (part of),			
Mortgage (paid during year),			318.31
Real Estate in Chelsea,	1,000.00		
Price Greenleaf Fund. The total amount of this Fund is \$719,868.31, which is invested as follows:—			
\$48,500 Consolidated R. R. of Vermont 5's, . .	86,280.00		435.00
12,200 Rutland R. R. 6's,	12,932.00		711.00
37,200 Rutland R. R. 5's,	34,968.00		1,860.00
1,000 Cheshire R. R. 6's (paid during year), .			60.00
46,500 Ogdens. & L. Champ. R. R. 6's,	46,500.00		1,395.00
28,800 Ogdens. & L. Champ. R. R. income 6's, .	10,234.00		
3,000 Chicago, Burl. & Quincy R. R. 4's, . . .	2,880.00		120.00
3,000 Chicago, Burl. & Northern R. R. 5's, . .	2,950.00		200.00
290 shares Northern R. R. (N. H.),	29,290.00		1,740.00
800 " Rutland " preferred,	28,000.00		1,600.00
40 " Ogdens. & L. Champ. R. R.,	680.00		
317 " Boston & Maine R. R.,	46,746.21		1,902.00
360 " Boston & Lowell "	46,800.00		2,880.00
337 " Fitchburg R. R., preferred,	32,444.00		1,418.00
355 " Old Colony "	63,190.00		2,485.00
142 " Chicago, Burl. & Quincy R. R.,	18,946.35		837.00
20 " N. Y. Central & Hudson River R. R., .	2,260.00		90.00
292 " Michigan Central R. R. (exchanged for bonds during year),			1,168.00
52 " West End Street Railway, preferred, .	4,305.56		208.00
\$34,000 New York Central & Hudson River R. R. (Michigan Central Collateral) 3½'s,			
	28,412.10		
50,000 Union Pacific R. R. 1st M. & L. G. 4's, .	44,625.00		763.07
50,000 Metropolitan Tel. & Tel. Co. 1st M. 5's, .	49,750.00		2,500.00
25,000 New England " " " 6's,	25,598.75		1,500.00
50,000 Chic. Junc. R'ys & Union Stock Yards 5's,	47,000.00		2,500.00
70,000 Broadway Realty Co. Purchase money 1st M. 5's,	75,250.00		3,500.00
35,000 American Bell Telephone Co. 4's, . . .	35,709.72		
Merrimack Manufacturing Co.'s Note (sold during year),			
			1,400.00
Cash in New England Trust Co.,			
		\$700.70	\$700.49
Totals,		\$1,305,599.07	\$69,557.21

The other Funds are invested as a whole. The general investments are stated in detail on pages 30 and 31 of this

report. The usual summary of them, and of their income, is as follows:—

Investments.	Principal, Aug. 1, 1897.	Principal, July 31, 1908.	Income.
Notes, Mortgages, &c.,	\$527,500.00	\$463,500.00	\$18,267.91
United States Bonds,		1,178,767.50	11,205.00
Railroad Bonds and Premiums, . . .	2,171,988.37	2,298,356.62	105,504.33
Railroad Stocks,	349,667.50	719,557.20	10,250.00
Sundry Bonds,	1,007,155.00	1,081,467.50	53,500.00
Manufacturing Stocks,	37,322.29	37,322.29	2,990.00
Real Estate,	2,485,085.98	2,692,938.30	120,127.50
Brattle Street Reversion (1918), . . .	1,000.00	1,000.00	
Advances to Bussey Trust,	54,835.51	54,835.51	2,741.77
“ “ Sch. of Veterinary Med., . . .	24,406.01	24,406.01	1,220.30
“ “ Botanic Department,	13,614.32	12,811.27	680.72
“ “ University Lands,	30,000.00	30,000.00	1,500.00
“ “ Dining Hall Association, . . .	12,782.16	12,232.16	833.33
“ “ Sundry Accounts,		104.82	
Baring Brothers & Company,	2,068.00	2,153.07	10.07
Term Bills due in October,	196,281.84	216,669.04	
Term Bills overdue,	5,582.84	6,971.05	
Cash in Suffolk National Bank, . . .	41,538.26	10,027.59	
Cash in National Union Bank,	268,892.91	50,124.57	5,707.15
Cash in New England Trust Co., . . .			286.85
Cash in hands of Bursar,	17,231.56	26,601.19	
Totals of general investments, . . .	\$7,097,937.55	\$8,425,361.05	\$324,870.53
Totals of special investments, . . .	1,865,115.75	1,805,599.07	89,557.21
Amounts,	\$8,963,053.30	\$10,230,960.12	\$414,427.74

The account of Advances for Railroad Bond Premiums has been credited with the sum of \$21,143.00 as the fair yearly repayment from income on account of premiums advanced.

The net income of the general investments has been divided at the rate of $4\frac{37}{100}$ per cent. among the Funds to which they belong, after allowing to certain temporary Funds and balances a special rate of three per cent. The fraction, which was \$60.32, has been placed as usual to the credit of the University account.

The rate of income compared with that for 1896–97, shows a loss of thirty three one hundredths of one per cent.

The following table shows the income available for the departments dependent upon the College proper, and the expenditures in those departments; the income and the expenditure for the Lawrence Scientific School and the College

being, as during the previous year, combined in the College account:—

Interest on Funds for

University Salaries and Expenses,	\$61,092.24		
Library Salaries and Expenses (not books),	21,954.79		
College Salaries and Expenses,	50,668.43		
Gymnasium, and repairs on College buildings, . .	none.		
College Term Bills,	485,256.85		
Sundry receipts, as follows:—			
Gifts for Salaries and Expenses,	\$6,250.00		
Use of buildings (not University Houses and Lands),	1,899.99		
Laboratory and other fees,	42,280.07		
Sales of catalogues, pamphlets, &c.,	8,365.43		
Repayment of advances for books,	28.00		
Unexpended appropriation returned,	250.00	54,073.49	\$623,045.29

Expended for

University Salaries and Expenses,	\$75,975.99		
Library Salaries and Expenses (not books),	89,372.68		
College Expenses,	120,247.95		
College Salaries, for instruction,	333,043.11		
Gymnasium Expenses,	11,889.44		
Repairs, insurance and cleaning on College buildings not valued on Treasurer's books,	26,384.13		
Repayment to Museum of Comparative Zoölogy for expenditures on behalf of the Undergraduate Depart- ment,	18,250.00		
Deficit in the School of Veterinary Medicine for 1897-98, assumed by the University,	1,728.31	\$626,891.61	
Balance, showing the deficit for the year, which has been charged to Stock Account,			
			\$3,846.52

The University, College, Lawrence Scientific School, and Library accounts, taken together, show a material increase of income from Funds as well as from tuition fees. There has been some increase of ordinary expenditure, chiefly for instruction, and an unusual expenditure of \$18,250 for the extinction of the obligation of the College to the Museum of Comparative Zoölogy. The year's deficit of the Veterinary School, amounting to \$1,728.31, has also been taken from unrestricted income of the University. This year the City of Cambridge has assessed taxes on certain lands and buildings belonging to the College and occupied by College officers or students. Pending the determination by the courts of the legality of

these assessments, the College has this year assumed a charge of \$2,922.50. For all these purposes, it has been necessary to use the whole income of the Stock Account, and to take from the capital of that account the sum of \$3,846.32, for the year's deficit. For 1896-97 there was a like deficit of \$18,370.23.

The Divinity School, with a large increase of income from tuition fees, and a corresponding increase of expenditures for instruction, has a deficit of \$4,191.51. The annual gift from the Society for Promoting Theological Education, received since closing the books for the year and amounting to \$2,088.60, would have largely reduced this deficit if received at the usual time. For 1896-97 there was a deficit of \$1,305.37.

The Law School, with more tuition fees, has a surplus of \$29,624.34. For 1896-97 the surplus was \$7,103.88.

The Medical School, with largely increased expenditure for instruction, has a deficit of \$1,737.66. In 1896-97 there was a surplus of \$2,259.59.

The Dental School has a surplus of \$4,900.64. For 1896-97 the surplus was \$1,881.03.

The Museum of Comparative Zoölogy used the income of its restricted Funds as required by the terms of gift; the Sturgis Hooper Fund being allowed to accumulate. There has been a surplus of unrestricted income amounting to \$1,044.20, as compared with a surplus of \$1,247.12 in 1896-97. In addition the Museum has received from the College the sum of \$18,250, as a repayment of expenditures made in past years for the benefit of undergraduates. Of this sum \$6,167.39 has been used to repay with interest the balance due the Agassiz Memorial Fund, for advances made for the extension of the Museum building.

For the General Account of the Observatory there is a deficit of \$269.82. In 1896-97 there was a surplus of \$506.39. The income of the Boyden Fund has been used for work in Peru, and large gifts from Mrs. Draper have been used for the special research work of the Draper Memorial.

The income of the Bussey Institution exceeded its ordinary expenses by \$3,161.96. In addition, an unusual expenditure of \$3,900 for rebuilding the Whitney barn was made from money received in 1896-97 from insurance.

For the Veterinary School, with some falling off of receipts from instruction, and a large decrease of expenditure for salaries and wages, there has been a deficit of \$1,728.31. This has been taken from the unrestricted income of the University. Last year this deficit was \$5,487.34.

Gifts have been received during the year as follows:—

GIFTS TO FORM NEW FUNDS OR INCREASE OLD ONES.

From the estate of George E. Ellis, \$7,098.40 additional, on account of his residuary bequest to constitute a fund to be known as the "Harvard Ellis Fund," in memory of his son, John Harvard Ellis of the class of 1862.

From Mrs. William Belden Noble, \$20,000, to establish, in memory of her late husband, the William Belden Noble Lectures.

From the Harvard Memorial Society, \$1,200, as a permanent fund, the income to be spent by the Society with the approval of the President and Fellows.

From the estate of John W. Carter, \$12,500, for his unrestricted bequest "for the benefit of the University."

From the estate of Theodore Lyman, \$10,000, his unrestricted bequest "for the benefit of said College."

From the estate of Henry L. Pierce, his bequest of \$50,000 for a permanent Fund, the use of the income thereof being unrestricted, and \$700,000 on account of his unrestricted residuary bequest.

From Miss Amelia M. Prichard, \$10,000, and from Miss Frances J. H. Prichard, \$5,000, to establish a Fund in memory of their brother, William Mackay Prichard, of the Class of 1833, the income thereof to be used "to increase the Fine Arts Collections of said College."

From an anonymous giver, \$100,000, to establish a Fund, to be called for the present the Unknown Memorial Fund.

From William C. Damon and Perley L. Horne, a fund of \$5,000, paid to them from the estate of Ralph Hamilton Shepard, "to be used to the advancement of Christian work at Harvard," and accumulated interest thereon of \$478.98; the fund to be known as the Ralph Hamilton Shepard Memorial

Fund, and the income to be used "in an impartial and non-sectarian way for religious work at Harvard University in connection with the work of the Phillips Brooks House."

From an anonymous giver, through J. B. Warner, \$20,000, for the partial foundation of the Asa Gray Professorship of Systematic Botany. One of the conditions of this gift is "that a further sum of thirty thousand dollars be secured, by or on behalf of the University, on or before Commencement Day in the year 1899, as a permanent fund to be called the Asa Gray Memorial Fund, the income of which shall be used for the maintenance of the Gray Herbarium, including salaries of assistants, purchase of specimens and other expenses incidental to the support and increase of the Herbarium."

From the estate of Clement K. Fay, \$1,000, to be added to the Class of 1867 Scholarship Fund.

From Charles A. Cummings and Margaret K. Cummings, \$5,000, to endow, in memory of their son, the Francis Hathaway Cummings Scholarship.

From the estate of William L. Chase, his bequest of \$5,000, with accumulated interest of \$305.83, to establish "a scholarship in the Medical School to be known as the Charles B. Porter Scholarship."

From the estate of Mrs. Sophia Gage Burr, \$271.27, additional, as the final payment on account of her residuary bequest for maintaining the Burr Scholarships in Harvard College.

From William B. Buckminster, \$5,000, to found, in memory of his son, who would have entered Harvard College in the Class of 1902, the Morey Willard Buckminster Scholarship.

From the trustees under the will of William Hilton, \$17,500, on account of his bequest for establishing the William Hilton Scholarship Fund.

From the trustee of the Thayer Scholarships, \$75,087.33, the total cash proceeds of the scholarship fund property held by him, to be invested with the general investments of the University and administered in accordance with the terms of the trust.

From Hennen Jennings, \$10,072.40, to found a scholarship in the Lawrence Scientific School.

From James H. Hyde, \$100, to be added to the fund established from Miss Elizabeth Torrey's bequest "for the purchase of books for the library of the Historical Department."

From the estate of Charles L. Hancock, \$5,149.61, on account of his residuary bequest.

From the estate of Miss Eliza Appleton Haven, \$25,000, and from the estate of Miss Charlotte Maria Haven, \$20,000, their bequests (made in accordance with the wishes of their brother, the late Horace Appleton Haven, to contribute to the advancement of astronomical science) for establishing the Haven Fund, the income thereof to be expended "for direct purposes connected with Astronomical Science at the University Observatory."

From the estate of Miss Charlotte Maria Haven, \$5,000, her bequest for establishing the Haven Fund, the income thereof to be used for the purchase of books for the library of the Divinity School.

For the Francis James Child Memorial Fund, from

		Amount brought forward . . .	\$166.15
Kuno Francke	\$26.15	James Huntington	8.00
John L. Gardner	100.00	Miss Catherine Ireland	5.00
William W. Goodwin	15.00	Gardiner M. Lane	20.00
Henry L. Higginson	25.00		
Amount carried forward . . .	\$166.15		\$194.15

From the estate of Antoine Ruppaner, \$4,335.94, as the final payment, after deducting the New York collateral inheritance tax and interest thereon, on account of his bequest of \$10,000 for establishing the "Dr. Ruppaner Fund" for the use of the Medical School.

From the estate of Buckminster Brown, \$904.49, on account of the income of Dr. Brown's bequest, now in the hands of trustees, for the establishment of the John B. and Buckminster Brown Professorship of Orthopedic Surgery.

From the J. W. and Belinda L. Randall Charities Corporation, \$5,000, to establish the John W. and Belinda L. Randall Fund, the income to be applied to the maintenance or in the interest of certain "philanthropic activity on the part of the students of the University, or in case this work should be given up, to be applied by said President and Fellows to kindred purposes."

From the Treasurer of the Class Subscription Fund, the additional sum of \$125.

From Miss Abby A. Bradley, \$20,000, to establish the William L. Bradley Fund, the income to be expended "by the Director of the Arnold Arboretum in scientific investigation to increase the knowledge of trees."

The total amount of these gifts for capital account is \$1,146,323.40, as is also stated on page 24 of this report.

GIFTS FOR IMMEDIATE USE.

From the J. W. and Belinda L. Randall Charities Corporation, \$10,000, "to be applied to the construction of the Phillips Brooks House to ensure in that building suitable accommodations for the charitable work of the organization known as the Student Volunteer Committee, so long as said organization shall retain the approval of the President and Fellows."

Through Clarence J. Blake, \$3,750, towards the cost of the land bought for the purposes of a University Infirmary. The balance of the cost of this land and the cost of the examination of title, amounting to \$3,854.30, were paid by the University for the account of University Houses and Lands.

From Mrs. C. M. Barnard, \$600, her fifteenth yearly payment for the Warren H. Cudworth Scholarships.

From Mrs. Henry Draper, of New York, an additional sum of \$9,999.96, to be expended by the Director of the Observatory in prosecuting the researches in the photography of stella spectra, with which the late Dr. Henry Draper's name is honorably associated.

From the estate of John Lowell, \$400, the thirteenth yearly payment for the support of two Scholarships to be known as the George Emerson Lowell Scholarships.

From William W. Goodwin, \$9.96, to be added to the income of the Charles Haven Goodwin Scholarship Fund.

For the account of Scholarship and Beneficiary Money Returned, from

		Amount brought forward .	\$981.38
Albert Blair	\$84.00	H. W. Waterman	159.00
F. P. Garland	100.00	W. E. Weaver	50.00
Charles F. Mason	529.38	W. T. B. Williams	38.00
Sidney Otis	318.00		
Amount carried forward . .	\$981.38		\$1,325.38

For the use of the Botanic Garden, Museum, and Laboratories, from

Anonymous, through G. L.	Amount brought forward . .	\$2,500
Goodale \$1,500	John L. Gardner	1,000
Anonymous, through G. L.	Henry Lee	1,000
Goodale 1,000	H. H. Hunnewell	1,000
Amount carried forward . .		<u>\$5,500</u>

From an anonymous giver, through G. L. Goodale, \$7,000, for the construction of greenhouses at the Botanic Garden.

From Oswald Garrison Villard, \$300, for a course of lectures on civic problems.

Through Miss Marian C. Jackson, \$1,000, for the salary for 1897-98 of the Instructor in the History and Art of Teaching, and \$150 for the salary for 1897-98 of the Lecturer on Manual Training.

From Henry C. Warren, \$750, additional, to be applied to the printing of Hindoo texts and of translations from the same, and to the purchase of Hindoo manuscripts.

From William G. Farlow, his annual gift of \$450, towards the salary of the Assistant in the Cryptogamic Herbarium.

From James A. Garland, \$3,000, for salaries in the department of Architecture.

From the Department of Mathematics, \$350, towards the salary for 1898-99 of an Instructor in Mathematics.

For the Department of Political Economy, from

An Anonymous giver	\$200
Class of 1879	300
	<u>\$500</u>

For the Department of French, from

Cercle Français	\$100
Howard C. Smith	100
	<u>\$200</u>

For the library of the Department of Architecture, from

	Amount brought forward . . .	\$175	
Arthur Astor Carey	\$100	Mrs. Charles A. Cummings . . .	50
Thornton Chard	25	E. Burgess Warren	100
Charles A. Cummings	50	E. R. Warren	25
Amount carried forward . . .	<u>\$175</u>		<u>\$350</u>

From Kuno Francke, \$13.26, for the Department of German.

From Henry C. Warren, \$116.76, for the Sanskrit Class Room library.

From Nathaniel C. Nash, \$500, to be spent by Professor John Williams White in such manner as he shall think will best advance the interests of the Department of Greek.

From an anonymous giver, through William G. Farlow, \$500, to be spent on cases for, and the arrangement of, the cryptogamic collection on the lower floor of the University Museum.

From William G. Farlow, \$300, for cases for the exhibition of fungi.

From John C. Ropes, \$100, for the Ropes Prize.

From the estate of Miss Edith Rotch, her bequest of \$5,000, for the Lawrence Scientific School.

For the purchase of books for the Library, from

Archibald Cary Coolidge	\$115.57
Dante Society	100.00
G. L. Kittredge	10.00
E. V. Morgan	10.00
	<hr/>
	\$235.57

For the purchase of books for the Child Memorial Library, from

Department of English	\$70
James Hazen Hyde	100
	<hr/>
	\$170

From James Byrne, \$700, to be added to the balance of Scholarship Money Returned, in the Law School.

From Miss Lucy Ellis, \$6,000, for assistance in the Departments of Physiology and Pathological Bacteriology at the Medical School for three years ending July 31, 1898.

From Walter G. Chase, \$200, for the increase of the Embryological collection.

From friends, through Henry P. Bowditch, \$75, to be added to the salary of the Instructor in Pharmacology for 1897-98.

From Henry F. Sears, \$1,500, for the Pathological Department Library.

From Moorfield Storey and James J. Putnam, \$500, from the income of a trust fund held by them, for the payment of certain salaries in the Medical School.

Additional subscriptions from graduates of the Dental School, to be applied towards the immediate wants of the School, paid to August 1, 1898, from

William H. Potter	\$5
Charles Wilson	10
	<u>\$15</u>

For the Free Clinic for Animals in connection with the School of Veterinary Medicine, from

	Amount brought forward . . .	\$258	
Bryce J. Allan	\$5	Mrs. W. B. Potter	50
M. A. Bailey	1	Henry P. Quincy	10
The Misses Battelle	5	H. C. Richards	5
Mrs. Freeman J. Bumstead . . .	5	Malbon Gore Richardson . . .	5
Miss Martha C. Codman	25	George W. Taylor	5
Robert Codman	10	L. B. Thacher	3
Mrs. James M. Crafts	5	T. C. Thacher	2
Miss Marian M. Crafts	5	Augustus L. Thorndike	5
C. A. Curtis	10	T. W. Thorndike	5
Francis Dumaresq	5	Bayard Thayer	100
Horatio J. Gilbert	5	E. V. R. Thayer	200
W. E. Harmon	2	John E. Thayer	100
Nathaniel H. Henchman	20	W. Lyman Underwood	5
John Homans	5	Mrs. H. V. Ward	5
C. M. Keep	2	Samuel D. Warren	20
R. Ashton Lawrence	100	John D. Williams	20
Mrs. Theodore Lyman	10	Miss L. H. Williams	25
Miss Eleanor G. May	3	Ralph B. Williams	25
Grenville H. Norcross	10	Mrs. Roger Wolcott	10
L. J. Parker	10	Miss Margaret G. Wyman . . .	5
Henry Pickering	10		
Amount carried forward . . .	\$258		<u>\$868</u>

From Charles Sprague Sargent, \$2,383.87 additional, which has been expended for books for the Arnold Arboretum.

For the Arnold Arboretum, from

Shepherd Brooks	\$700
H. H. Hunnewell	600
Massachusetts Society for Promoting Agriculture . . .	2,500
	<u>\$3,800</u>

From Jacob H. Schiff, \$5,000, for additions to the Semitic Museum and Library.

**For the Peabody Museum of American Archaeology and
Ethnology for salaries and expenses, from**

Trustees of the estate of Mrs. Mary Hemenway	\$500
Francis C. Lowell	100
Mrs. George G. Lowell	100
Clarence B. Moore	750
	<u>\$1,450</u>

Through William Hooper, Treasurer of The Soldier's Field Fund, \$1,847.71, for the improvement of The Soldier's Field.

Through Augustus P. Gardner, gifts for the improvement of The Soldier's Field, from

		Amount brought forward	\$6,728.00
C. F. Adams, 2d	\$100.00	F. L. Higginson	2,000.00
F. L. Ames	500.00	H. H. Hunnewell	500.00
O. Ames	500.00	J. Lee	10.00
C. W. Amory	500.00	J. Leiter	500.00
F. I. Amory	50.00	Arthur Lyman	10.00
J. S. Bigelow	50.00	Grenville Norcross	100.00
W. S. Bigelow	500.00	Otis Norcross	100.00
B. S. Bradley	200.00	J. H. Proctor	150.00
P. C. Brooks	500.00	W. B. Thomas	1,000.00
Shepherd Brooks	500.00	Francis Shaw	100.00
J. Caswell	50.00	C. F. Sprague	500.00
J. Crane, Jr.	50.00	J. J. Storrow, Jr.	100.00
W. D. Denegre	100.00	W. A. Wadsworth	500.00
W. S. Dexter	100.00	Fred Warren, Jr.	100.00
Tracy Dows	250.00	Fiske Warren	166.66
W. H. Forbes	500.00	H. C. Warren	166.66
A. P. Gardner	500.00	S. D. Warren	166.68
J. L. Gardner	500.00	S. M. Weld	300.00
W. A. Gardner	500.00		<u>\$13,196.00</u>
Harv. Club of Western N.Y.	78.00	Interest on deposit	53.67
A. Hemenway	1,000.00		
Amount carried forward	\$6,728.00		<u>\$13,251.67</u>

From Herbert M. Sears, \$500, and from C. C. Walker, \$100, for the improvement of The Soldier's Field.

The total amount of these gifts for immediate use is \$90,662.14, as is also stated on page 24 of this report.

CHARLES F. ADAMS, 2d, Treasurer.

Boston, November 11, 1898.

ACCOUNTS.

General Statement of Receipts and Disbursements
for the year ending

INCOME

Interest on notes, mortgages, advances, &c.,		\$37,322.90
United States 5's (after deducting \$6,295 for sinking premiums),	11,205.00	
Massachusetts 8½'s,	1,417.50	
City of Boston 8½'s,	350.00	
Chicago Sanitary District 5's,	5,000.00	
Metropolitan Telephone & Telegraph Co. 5's,	7,500.00	
New England Telephone and Telegraph Co. 6's,	7,500.00	
Chicago Junc. Railways & Union Stock Yards Co. 5's,	15,000.00	
Broadway Realty Co. 5's,	8,500.00	
Girard Point Storage Co. 8½'s,	700.00	
Policies Mass. Hospital Life Insurance Co.,	623.36	
Deposit in New England Trust Co.,	971.41	
Deposit in National Union Bank,	5,707.15	
Interest on Railroad Bonds (after deducting \$21,148 for sinking premiums).		
Fremont, Elkhorn & Mo. Valley 6's,	\$600.00	
Consolidated R. R. of Vermont 5's,	435.00	
Rutland Railroad 6's,	732.00	
Rutland Railroad 5's,	1,860.00	
Cheshire Railroad 6's,	60.00	
Ogdensburg & Lake Champlain 6's,	1,395.00	
Chicago, Burlington & Northern 5's,	200.00	
Chicago, Burlington & Quincy 4's,	120.00	
Chicago, Burlington & Quincy 7's,	24,186.00	
Chicago, Burlington & Quincy conv. 5's,	4,372.88	
Burlington & Mo. River in Neb. 6's,	23,765.00	
Eastern Railroad sterling 6's,	5,704.80	
Eastern Railroad 6's,	18,490.00	
Union Pacific R'y Omaha Bridge Renewal 5's,	5,687.50	
Fort Scott, So. E. & Memphis 7's,	6,478.00	
Chicago & No. W., Madison Extension 7's,	5,310.00	
Minneapolis Union 5's,	4,866.00	
Kansas City, Fort Scott & Memphis 6's,	58.83	
Little Rock & Fort Smith 7's,	174.50	
Kansas Equipment 5's,	261.11	
Kansas & Missouri 5's,	2,700.00	
Union Pacific 4's,	7,618.10	
Current River 5's,	550.42	115,575.09
Dividends on Stocks.		
Amoskeag Manufacturing Co.,	\$480.00	
Merrimack " "	510.00	
Pacific Mills,	2,000.00	2,990.00
Chicago, Burlington & Quincy R. R.,	\$3,604.00	
New York Central & Hudson River R. R.,	8,080.00	
Amounts carried forward,	\$11,684.00	\$210,362.49

*of the Treasurer of Harvard College,
July 31, 1898.*

EXPENSES.

Paid to account of Expenses in the

University, as per Table I (page 54).

Fellowships and Scholarships,	\$13,475.00	
Prizes,	300.00	
Salaries,	35,947.33	
Sundry payments made from special Funds, .	18,587.59	
Other expenses	36,928.66	
Deficit in the School of Veterinary Medicine for 1897-98,	1,728.31	\$106,966.89

College, as per Table II (page 58).

Salaries for instruction,	\$333,143.11	
Sundry salaries,	11,780.50	
Repairs, insurance, and cleaning on College Edifices, not valued on Treasurer's books, .	26,884.13	
General expenses,	61,084.17	
Scholarships,	35,773.52	
Beneficiaries,	18,780.28	
Prizes,	1,075.13	
Botanic Garden and Botanic Museum,	10,058.08	
Herbarium,	6,870.41	
Hemenway Gymnasium,	11,889.44	
Jefferson Physical Laboratory,	8,788.13	
Books for special departments,	2,226.73	
Apparatus, &c., from special gifts,	2,794.11	
Printing, from Publication Funds,	2,127.58	
Summer Schools,	18,399.06	
Appleton Chapel,	7,599.00	
Appropriations for collections and laboratories,	26,285.23	
Stoughton Pasture expenses,	550.00	
Repayment to Museum of Comparative Zoölogy for expenditures on behalf of the Under- graduate department,	18,250.00	598,358.60

Library, as per Table III (page 69).

Salaries,	\$12,791.66	
Services and wages	17,821.44	
Books,	15,418.40	
Other expenses,	8,759.58	54,791.08

Divinity School, as per Table IV (page 72).

Salaries for instruction,	\$26,991.56	
Scholarships and Beneficiaries,	2,169.46	
Other expenses,	8,935.02	38,096.04

Amount carried forward, \$798,212.61

*General Statement of Receipts and Disbursements
for the year ending*

INCOME (continued).

Amounts brought forward, \$11,684.00 \$310,362.40

Dividends on Stocks (continued).

Michigan Central R. R.,	1,168.00	
Rutland R. R., preferred,	1,600.00	
Northern R. R. (N. H.),	1,740.00	
Fitchburg R. R., preferred,	948.00	
Boston & Maine R. R.,	1,902.00	
Boston & Lowell R. R.,	2,880.00	
Old Colony R. R.,	2,485.00	
West End Street Railway, preferred,	208.00	24,615.00
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State Street Exchange,	\$225.00	
American Bell Telephone Co.,	888.50	
Calumet & Hecla Mining Co.,	660.00	1,273.50
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Real Estate Investments, from rents, &c., net receipts.

Cambridge (University Houses and Lands)

Gross receipts,	\$41,519.98	
Less Taxes,	\$6,880.21	
Insurance,	86.90	
Repairs, improvements, care, &c.,	15,219.15	21,686.26 \$19,833.72
<hr/>		

Boston (general investments).

Gross receipts,	\$178,134.34	
Less Taxes,	\$32,524.70	
Insurance,	5,028.98	
Repairs, improvements, care, &c.,	10,453.16	48,006.84 130,127.50
<hr/>		

Bussey real estate.

Gross receipts,	\$41,893.43	
Less Taxes,	\$7,762.80	
Insurance,	43.74	
Interest,	2,741.77	
Repairs, improvements, care, &c.,	1,180.95	
Heat and power,	4,605.95	16,334.71 25,048.72
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Sundry estates (special investments).

Gross receipts,	\$4,926.02	
Less Taxes,	\$859.40	
Insurance,	827.00	
Repairs,	557.45	1,743.85 3,182.17 176,203.11
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Amount carried forward, \$416,453.91

*of the Treasurer of Harvard College,
July 31, 1898.*

EXPENSES (*continued*).

Amount brought forward,		\$798,212.61
Law School, as per Table V (page 74).		
Salaries for instruction,	\$41,250.00	
Scholarships,	8,000.00	
Other expenses,	26,028.92	70,278.92
Medical School, as per Table VI (page 75).		
Salaries for instruction,	\$92,200.00	
Fees repaid to Instructors,	5,604.00	
Scholarships and Beneficiaries,	4,448.18	
Boylston Medical Prizes and expenses,	200.00	
Warren Anatomical Museum,	968.31	
Sundry payments made from special Funds,	2,896.68	
Laboratory expenses, &c.,	7,451.51	
Other expenses,	81,484.23	144,748.10
Dental School, as per Table VII (page 78).		
Salaries for instruction,	\$12,146.00	
Other expenses,	13,257.21	25,403.21
Museum of Comparative Zoölogy, as per Table VIII (page 79).		
Paid from sundry Funds on the order of the		
Faculty,	\$20,067.13	
Sturgis Hooper Fund, expenses,	171.31	
Scholarship,	250.00	20,488.44
Peabody Museum of American Archae- ology and Ethnology, as per Table IX (page 80).		
Peabody Professor Fund, Peabody Pro- fessor,		
	\$3,229.56	
Fellowships and Scholarships,	1,662.23	
Other expenses,	5,943.10	9,834.89
Observatory, as per Table X (page 81).		
Salaries,	\$10,950.00	
Other expenses,	36,242.05	47,192.05
Bussey Institution, as per table XI (page 82).		
Salaries for instruction,	\$6,400.00	
Rebuilding Whitney barn,	3,900.00	
Other expenses,	8,801.63	18,601.63
Arnold Arboretum, as per Table XI (page 82).		
Salaries,	\$3,500.00	
Other expenses,	10,725.40	14,225.40
Amount carried forward,		\$1,148,980.25

*General Statement of Receipts and Disbursements
for the year ending*

INCOME (continued).

Amount brought forward,		\$414,453.01
Term Bills.		
College, as per Table II,	\$435,256.35	
Divinity School, as per Table IV,	8,103.74	
Law School, as per Table V,	80,200.00	
Medical School, as per Table VI,	111,962.74	
Dental School, as per Table VII,	20,054.83	
Peabody Museum of American Archaeology and Ethnology, as per Table IX,	403.56	
Bussey Institution, as per Table XI,	575.00	
School of Veterinary Medicine, as per Table XII,	4,874.00	661,490.23
Sundries.		
Ass Gray's copyrights,	\$1,806.81	
Trustee of Thayer Scholarships,	1,500.00	
Matthews Scholarships ($\frac{1}{2}$ net rents of Hall),	5,080.48	
Trustees of Edward Hopkins,	204.98	
Sale of grass, wood, old material, &c.,	4,495.77	
Sale of old examination papers,	254.29	
Sale of tickets to Commencement Dinner,	662.00	
Sale of tickets to Divinity School Alumni Dinner,	28.00	
Sale of books, pamphlets, catalogues, &c.,	4,739.92	
Sale of geographical models,	363.75	
Board of horses, cattle, &c., at Bussey Institution,	2,687.53	
Repayment of advances for microscopes,	514.95	
Repayment of advances for books,	16.00	
Repayments for keys,	22.00	
Repayment of part of cost of publishing Observa- tory Annals,	750.00	
Repayment of general average deposits,	15.55	
Laboratory instruction to Dental and Veterinary students at Medical School,	2,794.00	
Laboratory instruction to Medical and Veterinary students at Dental School,	2,015.00	
Subscriptions to Veterinary Hospital,	740.00	
Use of Library by resident graduates and others,	75.00	
Use of lockers in Hemenway Gymnasium,	4,858.50	
Use of Buildings (not University Houses and Lands),	4,174.99	
Fees for admission and condition examinations,	2,356.00	
Fees in Infirmary, Dental School,	6,639.98	
Fees from Veterinary Hospital and Forge,	15,543.53	
Fees from Free Clinic,	255.47	
Fees for examination for degree of Ph.D.,	30.00	
Laboratory fees,	19,947.79	
Amounts carried forward,		\$82,071.72 \$1,075,561.35

*of the Treasurer of Harvard College,
July 31, 1898.*

EXPENSES (continued).

Amount brought forward,	\$1,148,980.25	
School of Veterinary Medicine, as per Table XII (page 83).		
Salaries for instruction,	\$6,155.82	
Scholarships,	300.00	
Other expenses,	17,821.06	
	<u>\$24,276.88</u>	
Less deficit for 1897-98 assumed by the University,	1,728.31	22,548.57
Annuities from the following Funds.		
Bussey Trust,	\$4,000.00	
Gore,	255.62	
Gurney,	1,000.00	
Henry Willard Williams,	1,182.50	
Anonymous,	200.00	6,618.12
Class Funds.		
Paid the Secretary of the Class of 1844, . .	\$200.00	
" " " " 1853, . .	149.00	349.00
Sundry payments from income.		
From Gray Fund for Engravings, to the Treasurer of the Museum of Fine Arts, and expenses,	\$687.29	
From Daniel Williams Fund, for the benefit of the Herring Pond and Masphee Indians, . .	770.19	
From Sarah Winslow Fund, to the Minister and Teacher at Tyngsborough, Mass.,	219.54	
From John Witt Randall Fund, expenses on account of the Randall collection,	357.84	
From Woodland Hill Fund, expenses on land, plans, and surveys,	3,883.40	
From Bussey Trust, expenses in connection with the Bussey portraits and furniture (given by the College to Mr. Bussey's family after Mrs. Motley's children ceased to occupy the Mansion House),	50.00	5,967.76
Total amount of expenses,		<u>\$1,179,463.70</u>

INVESTMENTS AND SUNDRY PAYMENTS.

\$200,000 United States 5's of 1904,	\$227,000.00	
500,000 United States 4's of 1925,	609,000.00	
1,000 Massachusetts 3½'s (Robert Troup Paine Fund),	1,085.82	
Amounts carried forward,	<u>\$837,085.82</u>	<u>\$1,179,463.70</u>

*General Statement of Receipts and Disbursements
for the year ending*

INCOME (continued).

Amounts brought forward,	\$82,071.72	\$1,073,883.33
Fees for Summer Courses,	\$15,185.00	
Other receipts from Summer Courses,	186.21	15,371.21
Fees for use of camp at Martha's Vineyard,		67.69
Fines,		78.80
Insurance,		226.50
Unexpended appropriation returned,		250.00
Dividend on bank deposit,		3.38
		98,069.30
Sundry Gifts for immediate use (see page 16),		90,662.14
Total amount of income,		\$1,264,614.67

RECEIPTS EXCLUSIVE OF INCOME.

GIFTS FOR CAPITAL ACCOUNT.

Harvard Ellis Fund (additional),	\$7,098.40	
Harvard Memorial Society Fund,	1,200.00	
John W. Carter Fund,	12,500.00	
Theodore Lyman Fund,	10,000.00	
William Mackay Prichard Fund,	15,000.00	
Unknown Memorial Fund,	100,000.00	
Ralph Hamilton Shepard Memorial Fund,	5,478.98	
Henry L. Pierce Residuary Bequest,	700,000.00	
Henry L. Pierce Fund,	50,000.00	
Asa Gray Professorship of Systematic Botany, . . .	20,000.00	
Class Subscription Fund (additional),	125.00	
Francis Hathaway Cummings Scholarship Fund, . .	5,000.00	
Charles B. Porter Scholarship Fund,	5,805.83	
Burr Scholarship Fund (additional),	271.27	
Morey Willard Buckminster Scholarship Fund, . .	5,000.00	
William Hilton Scholarship Fund,	17,500.00	
Thayer Scholarship Fund,	75,087.33	
Hennen Jennings Scholarship Fund,	10,072.40	
Gift to be added to Elizabeth Torrey Bequest, . .	100.00	
Charles L. Hancock Bequest (additional),	5,149.61	
Haven Fund (Observatory),	45,000.00	
Haven Fund (Divinity School),	5,000.00	
Francis James Child Memorial Fund (additional), .	194.15	
Dr. Rupperer Fund (additional),	4,835.94	
John B. and Buckminster Brown Professorship Fund (additional),	904.49	
William L. Bradley Fund,	20,000.00	
John W. and Belinda L. Randall Fund,	5,000.00	
William Belden Noble Lectures Fund,	20,000.00	
Class of 1867 Scholarship Fund (additional), . . .	1,000.00	1,146,323.40
Amount carried forward,		\$2,410,938.07

of the Treasurer of Harvard College,
July 31, 1898.

INVESTMENTS AND SUNDRY PAYMENTS (*continued*).

Amounts brought forward,	\$837,085.82	\$1,179,463.70
50,000 Union Pacific R. R. 1st M. 4's (Price Greenleaf Fund),	44,625.00	
400,000 Union Pacific R. R. 1st M. 4's,	353,114.75	
7,800 Burlington & Missouri River R. R. (Neb.) 6's	8,385.00	
400,000 Walter Baker & Company Limited 4½'s, . .	400,000.00	
100,000 American Bell Telephone Co. 4's,	101,750.00	
35,000 American Bell Telephone Co. 4's (Price Greenleaf),	35,612.50	
34,000 New York Central & Hudson River R. R. (Mich. Cent. Coll.) 3½'s (Price Green- leaf),	23,412.10	
Accrued interest and expenses on bonds, . .	1,762.40	1,810,747.57
Improvements on Gray Estate,	\$66,666.67	
Estate Nos. 413-415 Washington St., Boston,	191,200.65	
Estate No. 29 Kirkland Street, Cambridge,	25,075.65	
Land for an infirmary, Mt. Auburn St., Cambridge (part),	3,854.30	
Carey Athletic Building,	15,000.00	801,797.37
Paid Baring Brothers & Co. in account,	\$66.77	
Less commission and expenses,	1.70	65.07

Amount carried forward, \$3,292,073.61

*General Statement of Receipts and Disbursements
for the year ending*

Amount brought forward, \$2,410,938.07

RECEIPTS EXCLUSIVE OF INCOME (continued).

SALES.

\$175,000 U. P. Omaha Bridge Ren. 5's (exchanged for \$175,000 U. P. 1st M. 4's, valued at \$152,114.75, and 487½ shares U. P. pre- ferred stock, sold for \$26,468.75), . . .	\$178,583.50	
100,000 Chicago Sanitary District 5's,	104,820.83	
18,600 Burlington & Missouri River R. R. (Neb.) 6's (paid off at par),	18,600.00	
16,000 Fort Scott, South Eastern & Memphis R. R. 1st M. 7's (paid off at 105),	16,800.00	
3,000 Little Rock & Fort Smith R. R. 1st M. 7's, .	2,940.00	
1,000 Kansas City, F. S. & Memphis R. R. 1st M. 6's,	1,020.00	
3,000 Chicago, Burl. & Quincy R. R. conv. 5's, . .	3,165.00	
10,000 Current River R. R. 1st M. 5's,	7,000.00	
5,000 Kansas Equipment 1st M. 5's,	8,750.00	
220 shares Chicago, Burlington & Quincy R. R.,	21,452.50	
100 shares State Street Exchange,	11,587.50	
22 shares Calumet & Hecla Mining Co.,	11,429.00	
87 shares American Bell Telephone Co.,	9,120.50	
\$1,000 Cheshire R. R. 6's (paid off at par),	1,000.00	
292 shares Michigan Central R. R. exchanged for N. Y. Central & H. R. R. R. (Mich. Cent. Coll.) 8½'s,	28,032.00	
1,000 Chic., Burl. & North. R. R. 5's (paid off at 105),	1,050.00	
52 Rights, West End Street Railway,	24.44	
Land on Holyoke Street, Cambridge,	28,548.00	
Land taken by the Metropolitan Water Board on west side of North Harvard Street, Brighton,	2,500.00	450,938.37

SUNDRIES.

Dining Hall Association, to reduce debt,	\$1,500.00	
Premiums on United States Bonds, repaid in part, . .	6,295.00	
Advances to premiums on R. R. Bonds, repaid in part,	21,143.00	
Advances to accrued interest and expenses on bonds, repaid,	1,581.90	
Advances to Museum of Comparative Zoölogy, repaid from College income (less interest, \$293.69),	17,956.31	
Scholarship and Beneficiary money returned by Bene- ficiaries,	25.56	48,801.77
Notes and Mortgages paid off,	\$961,697.00	
Less invested in notes of Manufacturing Cos.,	858,000.00	103,697.00
Amount carried forward,		\$3,018,860.11

*of the Treasurer of Harvard College,
July 31, 1898.*

Amount brought forward, \$3,292,073.61

Amount carried forward \$3,292,073.61

*General Statement of Receipts and Disbursements
for the year ending*

RECEIPTS EXCLUSIVE OF INCOME (continued).

Amount brought forward, \$8,013,860.11

Bursar's Sundry Accounts.

Receipts during the year, 359,841.19

Balance, August 1, 1897.

Cash in Suffolk National Bank.	\$41,538.26	
Cash in National Union Bank,	268,892.91	
Cash in New England Trust Co.,	50,847.17	
Cash in hands of Charles F. Mason, Bursar, . .	17,231.56	
Term Bills due October, 1897,	196,281.84	
“ “ overdue,	5,582.84	580,374.58
Total,		\$3,954,075.86

*of the Treasurer of Harvard College,
July 31, 1898.*

INVESTMENTS AND SUNDRY PAYMENTS (continued).

Amount brought forward, \$3,292,078.61

Bursar's Sundry Accounts.

Payments during the year.

On account of Harvard Dining Association,	\$192,997.49	
On account of Foxcroft Club,	30,975.21	
On sundry accounts,	127,419.34	351,392.04

Balance, July 31, 1898.

Cash in Suffolk National Bank,	\$10,027.59	
Cash in National Union Bank,	50,134.57	
Cash in New England Trust Co.,	206.79	
Cash in hands of Charles F. Mason, Bursar,	26,601.19	
Term Bills due October, 1898,	216,669.04	
" " overdue,	6,871.05	310,610.28
Total,		\$3,954,075.88

The following Account exhibits the State of the Property, as entered upon the Treasurer's Books, July 31, 1898.

Separate Investments, as stated in detail on pages 3, 4, and 5 of this report, consisting of

Railroad Bonds,	\$281,731.10	
Sundry Bonds,	807,083.00	
Railroad Stocks,	264,576.95	
University Houses and Lands,	493,128.81	
Other Real Estate,	433,203.48	
Sundries,	20,669.44	
Cash in New England Trust Co.,	206.79	\$1,805,599.97

And "General Investments," as follows:—

Mortgages and Notes.

Mortgages,	\$13,500.00	
Boott Cotton Mills' Note,	100,000.00	
Massachusetts Cotton Mills' Note,	50,000.00	
Merrimack Manufacturing Co.'s Notes,	100,000.00	
Pacific Mills' Notes,	200,000.00	463,500.00

United States Bonds.

\$500,000 United States 5's of 1904,	\$564,767.50	
500,000 United States 4's of 1925,	609,000.00	1,173,767.50

Railroad Bonds.

\$425,800 Burl. & Mo. R. in Nebr. non ex. 6's,	\$425,800.00	
87,000 Ft. Scott, So. E. & Mem., 1st M. 7's,	87,000.00	
393,000 Eastern, 1st M. 6's of 1906,	393,000.00	
£19,800 Eastern " " Sterling of 1906,	95,383.40	
\$500,000 Chic., Burl. & Quincy Consol. 7's of 1903,	500,000.00	
100,000 Chic., Burl. & Quincy Conv. 5's of 1903,	100,000.00	
100,000 Chic. & No. W. Madison Ex. 1st M. 7's of 1911,	100,000.00	
100,000 Minneapolis Union 1st M. 5's of 1922,	100,000.00	
400,000 Union Pacific 1st M. & L. G. 4's of 1947,	853,114.75	
Railroad Bond Premiums,	144,058.47	2,396,356.62

Sundry Bonds.

\$100,000 Metropolitan Tel. & Tel. Co. 1st M. 5's of 1918,	\$99,500.00	
100,000 New England Tel. & Tel. Co. 6's of 1906,	102,375.00	
100,000 American Bell Tel. Co. 4's of 1908,	101,750.00	
250,000 Chicago Junction Railways and Union Stock Yards Coll. Trust 5's of 1915,	250,342.50	
100,000 Broadway Realty Co. Purchase money 1st M. 5's of 1926,	107,500.00	
400,000 Walter Baker & Co. Ltd. 4½'s of 1908,	400,000.00	1,061,467.50

Amount carried forward, \$6,802,690.69

Amount brought forward, \$6,802,690.69

Sundry Stocks.

12 shares Amoskeag Manufacturing Co., . . .	\$3,654.00	
17 " Merrimack " . . .	17,000.00	
20 " Pacific Mills,	16,668.29	
500 " Chicago, Burl. & Quincy R. R., . .	45,000.00	
2000 " N. Y. Central & Hud. River R. R., .	204,687.50	287,009.79

Real Estate.

Amory Estate, Franklin Street, Boston, . . .	\$165,615.81	
Webb Estate, Washington Street, Boston, . . .	164,604.79	
Gray Estate, Washington Street, Boston, . . .	884,231.77	
Adams Estate, Washington Street, Boston, . . .	441,200.65	
Lowell Estate, Washington Street, Boston, . . .	464,368.91	
Hayward Estate, Washington Street, Boston, . .	578,361.88	
Townsend Estate, Hawkins Street, Boston, . . .	44,569.49	
Reversion of Buildings in Brattle Street, Boston,	1,000.00	2,698,958.80

Sundries.

Advances to Bussey Trust,	\$54,885.51	
" " School of Veterinary Medicine, . .	24,406.01	
" " Botanic Department,	12,811.27	
" " University Lands,	30,000.00	
" " Dining Hall Association,	12,282.16	
" " Sundry Accounts,	464.88	
Baring Brothers & Co.,	2,158.07	
Term bills due October, 1898,	216,669.04	
" " overdue,	6,971.05	360,542.99
Cash in Suffolk National Bank,	10,027.59	
" " National Union Bank,	50,134.57	
" " hands of Charles F. Mason, Treasurer, . . .	26,601.19	86,763.35
Total,		\$10,230,960.12

The foregoing Property represents the following Funds and Balances, and is answerable for the same.

Principal, Aug. 1, 1897.	UNIVERSITY FUNDS.	Principal, July 31, 1898.
\$74,166.48	Stock Account (so called),	\$70,820.11
141,638.74	Ins. and Guaranty Fund (so called), .	141,638.74
15,750.00	Israel Munson Fund,	15,750.00
16,871.63	Leonard Jarvis Fund,	16,871.63
25,000.00	John C. Gray Fund,	25,000.00
115,966.56	George B. Dorr Fund,	115,966.56
118,817.44	Francis E. Parker Fund,	118,817.44
5,000.00	Stanton Blake Fund,	5,000.00
4,771.33	Charlotte F. Blanchard Fund, .	4,771.33
10,000.00	Joseph Lee Fund,	10,000.00
100,000.00	William F. Weld Fund,	100,000.00
10,000.00	Henry P. Kidder Fund,	10,000.00
48,458.50	George Draper Fund,	48,458.50
46,913.13	Isaac Sweetser Fund,	46,913.13
5,000.00	George Baxter Hyde Fund, . .	5,000.00
85,408.34	Harvard Ellis Fund,	101,030.49
5,250.00	Samuel D. Bradford Fund, . . .	5,250.00
22,000.00	John Cowdin Fund,	22,000.00
23,870.03	John L. Russell Fund,	23,870.03
81,950.54	Henry T. Morgan Fund,	81,950.54
	Theodore Lyman Fund,	10,000.00
	John W. Carter Fund,	12,500.00
	Gore Fund,	20,571.18
	Henry L. Pierce Fund,	50,000.00
	Henry L. Pierce Residuary Be- quest,	700,000.00
5,000.00	Seth Turner Fund,	5,000.00
80,000.00	William Perkins Fund,	80,000.00
20,000.00	Walter Hastings Fund,	20,000.00
63,608.65	President's Fund,	63,398.37
154.71	Thomas Cotton Fund,	154.34
219,972.28	Retiring Allowance Fund,	231,705.06
56,482.23	William Hayes Fogg Fund, . .	52,239.67
	John W. and Belinda L. Randall Fund,	5,145.55
70,000.00	J. W. and Belinda L. Randall Construction Fund,	68,484.37
14,443.54	Gifts for Phillips Brooks House, .	25,079.36
55,989.28	John Parker Fellowships,	55,635.96
12,318.71	Robert Treat Paine Fellowship, .	12,107.06
10,835.21	Harris Fellowship,	11,058.70
10,780.80	John Thornton Kirkland Fellowsh'p,	10,649.74
11,295.46	James Walker Fellowship,	11,289.04
\$1,632,113.48	. . Amounts carried forward,	\$3,458,127.37

Principal,
Aug. 1, 1897.

Principal, July 31, 1898.

\$1,632,118.48	Amounts brought forward, . . .	\$2,458,127.27
81,918.27	Rogers Fellowships,	82,563.09
11,188.89	Henry Lee Memorial Fellowship, . . .	11,227.31
10,823.26	Ozias Goodwin Memorial Fellows'p, . . .	10,549.38
21,259.52	Whiting Fellowships,	21,238.56
11,076.42	H. B. Rogers Memorial Fellows'p, . . .	11,110.44
11,530.48	John Tyndall Scholarship, . . .	11,534.34
	Francis H. Cummings Scholars'p, . . .	5,045.54
	William Hilton Scholarships, . . .	17,526.04
39,027.47	Joseph Eveleth Fund,	39,279.61
1,562.80	Frank Bolles Memorial Fund, . . .	1,573.10
	Ralph Hamilton Shepard Memorial Fund,	5,515.16
250.00	George Griswold Van Rensselaer Fellowship (balance), . . .	
6,540.16	George B. Sohler Prize Fund, . . .	6,761.47
2,749.05	Sumner Prize Fund,	2,869.19
2,865.23	John O. Sargent Prize Fund, . . .	2,868.53
3,474.02	Robert N. Toppan Prize Fund, . . .	3,475.83
1,209.08	James Gordon Bennett Prize F'd, . . .	1,261.91
50.00	Robert Treat Paine Prizes (bal.), . . .	
100.00	Dante Prizes (balance),	100.00
8,598.87	Lectures on Political Economy Fund, . . .	8,974.10
5,481.12	Ingersoll Lecture Fund,	5,477.64
	William Belden Noble Lectures, . . .	20,000.00
1,573.15	Gifts for Semitic Collection,	6,665.34
417.54	" " " Library,	212.05
		\$2,683,505.96

COLLEGE FUNDS.

27,748.64	Alford Professorship,	\$27,748.64
23,387.40	Boylston "	23,387.40
21,619.50	Eliot "	21,619.50
10,000.00	Eliot "(Jon. Phillips' gift),	10,000.00
3,500.01	Erving "	3,500.01
35,990.99	Fisher "	35,990.99
	Assa Gray "(Systematic Botany),	20,509.85
20,217.06	Hersey "	20,217.06
21,744.18	Hersey "(Thomas Lee's gift),	21,744.18
3,747.33	Hollis "(Mathematics),	3,747.33
34,517.60	Hollis "(Divinity),	34,517.60
43,062.93	McLean "	43,062.93
21,000.00	Perkins "	21,000.00
25,020.19	Plummer "	25,020.19
52,500.00	Pope "	52,500.00
56,441.25	Rumford "	56,441.25
23,139.83	Smith "	23,139.83
193,807.20	Gurney Fund,	190,276.57
\$2,425,151.94	Amounts carried forward,	\$689,873.85
		\$2,683,505.96

Principal, Aug. 1, 1867.		Principal, July 31, 1868.	
\$2,425,151.94	Amounts brought forward, . . .	\$639,873.35	\$2,683,505.26
16,240.88	Fund for Permanent Tutors, . . .	16,240.88	
15,796.97	Lee Fund for Reading, . . .	15,796.97	
150,127.54	Class Subscription Fund, . . .	150,252.54	
8,153.79	Paul Dudley Fund for Lectures, . . .	8,191.63	
31,500.00	Jonathan Phillips Fund, . . .	31,500.00	
1,050.00	John A. Blanchard " . . .	1,050.00	
7,142.07	John W. P. Abbot " . . .	7,454.18	
13,744.01	Daniel H. Pierce " . . .	13,804.07	
6,280.00	Daniel Austin " . . .	6,230.00	
2,707.18	Schol. & Benef. money returned (bal.), . . .	2,519.78	
343.89	Henry Flynt's Bequest, . . .	342.75	
2,594.62	Abbot Scholarship, . . .	2,551.79	
1,509.01	Alford " . . .	1,574.95	
5,463.19	Bartlett " . . .	5,368.58	
5,752.60	Bassett " . . .	5,784.01	
12,464.63	Bigelow " . . .	12,509.35	
1,756.59	Borden Scholarship, . . .	1,833.37	
111,828.32	Bowditch " . . .	111,881.88	
1,676.00	Bright " (balance), . . .	1,701.84	
3,678.48	Browne " . . .	3,689.16	
	Morey Willard Buckminster Sch., . . .	5,018.22	
31,096.66	Burr Scholarship, . . .	31,669.06	
6,152.46	Buluff S. Choate Scholarship, . . .	6,121.30	
7,866.82	Class of 1802 Scholarship, . . .	7,910.41	
3,110.99	" 1814 " . . .	3,080.22	
6,123.32	" 1815 "(Kirkland), . . .	6,190.30	
4,255.64	" 1817 " . . .	4,291.53	
3,476.54	" 1828 " . . .	3,478.48	
4,574.75	" 1835 " . . .	4,674.68	
4,169.48	" 1841 " . . .	4,085.01	
4,919.90	" 1852 "(Dana), . . .	4,934.90	
10,000.00	" 1856 " . . .	10,000.00	
3,456.49	" 1867 " . . .	4,516.61	
11,298.98	Crowninshield " . . .	11,326.09	
600.00	W. H. Cudworth " (balance), . . .	600.00	
5,509.29	George & Martha Derby Sch., . . .	5,500.03	
4,708.71	Julius Dexter Scholarship, . . .	4,764.49	
5,465.58	W. S. Eliot " . . .	5,537.78	
2,048.27	Fall River " . . .	2,057.77	
6,135.81	Farrar " . . .	6,070.61	
10,802.44	Richard Augustine Gambrill Scholarship, . . .	10,874.49	
5,990.04	Charles Haven Goodwin Sch., . . .	6,000.00	
4,052.71	Benjamin D. Greene Scholarship, . . .	4,029.83	
300.00	Price Greenleaf Sch. (balance), . . .	200.00	
10,208.40	Elbeneser Rockwood Hoar Sch., . . .	10,254.49	
\$2,977,234.24	Amounts carried forward, . . .	\$1,198,787.56	\$2,683,505.26

Principal,
Aug. 1, 1897.

Principal July 31, 1898.

\$2,977,234.24	Amounts brought forward, . . .	\$1,198,787.56	\$2,688,505.96
6,085.62	Levins Hoar Scholarship,	6,101.58	
12,021.29	Hodges "	12,346.61	
5,836.92	Hollis "	5,892.00	
	G. E. Lowell " (balance),	66.66	
4,441.52	Matthews "	4,522.00	
5,585.09	Merrick "	5,629.15	
7,816.57	Morey "	7,858.17	
5,452.94	Lady Mowson "	5,491.24	
5,117.50	Howard Gardner Nichols Sch.,	5,341.11	
4,198.95	Lucy Osgood Scholarship, . . .	4,877.23	
6,593.11	Pennoyer "	6,467.02	
4,054.95	Perkins "	4,082.15	
1,412.38	Wendell Phillips Mem'l Scholars'p,	1,420.74	
1,207.42	Rodger Scholarship,	1,260.17	
3,387.72	Henry B. Rogers Scholarship, .	3,435.78	
5,383.63	Edward Russell "	5,418.91	
5,247.86	Sales Scholarship,	5,310.54	
4,429.65	Saltonstall "	4,428.24	
5,031.96	Leverett Saltonstall Scholarship,	5,051.86	
6,844.10	Mary Saltonstall Scholarship, . .	6,793.18	
3,242.71	Sever Scholarship,	3,234.43	
10,332.44	Sewall "	10,438.13	
48,050.95	Shattuck "	48,000.58	
5,880.04	Slade "	5,970.34	
4,247.43	Story "	4,233.02	
2,492.78	Stoughton Scholarship,	2,170.13	
	Thayer "	75,428.00	
4,025.91	Gorham Thomas Scholarship, . .	4,001.85	
7,288.81	Toppan "	7,307.84	
24,764.85	Townsend "	24,729.88	
4,216.70	Walcott "	4,300.98	
10,874.87	Whiting "	11,016.77	
1,333.34	Exhibitions,	1,333.34	
1,954.31	Palfrey Exhibition,	1,959.70	
10,422.52	Henry B. Humphrey Fund, . .	10,478.01	
1,945.44	Robert Keyne Fund, . . (1659)	1,945.44	
1,245.86	William Brattle " . . (1717)	1,245.86	
347.94	Henry Gibbs " . . (1722)	350.05	
336.70	Ephraim Flynt " . . (1723)	336.70	
748.25	Thomas Danforth Fund, (1724)	780.94	
157.12	Anne Mills " (1725)	163.98	
561.19	Thomas Fitch " (1737)	585.71	
210.84	Benjamin Wadsworth Fund, (1737)	210.84	
812.35	John Ellery " (1738)	812.35	
117.12	Henry Flynt " (1760)	117.12	
156.20	Joseph Sewall " (1765)	156.20	
\$3,222,661.24	Amounts carried forward, . . .	\$1,520,932.58	\$2,688,505.96

Principal, Aug. 1, 1897.		Principal, July 31, 1898.	
\$3,222,661.24	Amounts brought forward, . . .	\$1,520,932.58	\$2,683,505.96
419.04	Nathaniel Appleton Fund (1772)	437.35	
269.38	Edward Holyoke " (1743)	281.13	
735.59	Mary Lindall " (1812)	767.75	
1,200.00	Samuel Ward Fund,	1,200.00	
2,221.80	John Glover "	2,218.90	
11,155.10	Quincy Tufts "	11,155.10	
5,448.73	Day "	5,448.73	
10,534.61	Munroe "	10,534.61	
	Unknown Memorial Fund,	101,697.09	
4,222.50	Dr. A. P. Peabody Memorial Fund,	4,247.56	
7,024.87	Price Greenleaf Aid (balance), .	5,496.65	
8,880.77	Boylston Prizes for Elocution, . .	8,855.37	
14,532.53	Bowdoin Prizes for Dissertations,	14,598.93	
1,048.46	Sales Prize,	1,049.26	
1,564.86	Hopkins Gift for "Deturs" (bal.),	1,603.10	
900.68	Chauncey Wright Fund,	907.91	
50,000.00	Increase S. Wheeler Fund, . .	50,000.00	
1,033.57	Fund for Religious Services,	1,033.57	
15,369.78	John H. Thayer Fund,	15,309.17	
7,071.15	Classical Publ. F'd of Class of 1856,	7,080.15	
39,780.00	Botanic Department Fund,	39,780.00	
	Gift for greenhouses at the Botanic Garden,	7,000.00	
66,382.31	Lowell Fund for a Botanic Garden,	66,382.31	
23,695.76	Herbarium Fund,	23,937.93	
75,000.00	Physical Laboratory Endowment, . .	75,000.00	
10,406.09	Henry Warren Torrey Fund, . .	10,159.76	
985.25	Elizabeth Torrey Bequest,	1,079.56	
11,278.76	Francis James Child Mem. Fund,	11,014.65	
8,119.66	Joseph Lovering Fund,	7,798.67	
6,126.83	Cyrus M. Warren "	5,980.48	
438.65	Jefferson Physical Lab'y (balance),		
4,098.72	George William Sawin Fund, . .	4,277.85	
1,048.41	Sundry Gifts (unexpended balances),	1,770.69	
179.63	Gifts for Classical Library (balance),	233.03	
56.59	" Historical " "	21.64	
2,491.89	" Sanskrit Department,	3,398.44	
4,750.00	" College Salaries,	3,850.00	2,021,639.56

LIBRARY FUNDS.

100,000.00	Eben Wright Fund,	\$100,000.00	
26,017.36	Constantius "	25,966.26	
500.00	Jarvis "	500.00	
11,925.34	Daniel Treadwell Fund,	11,925.34	
10,552.72	Subscription for Library (1859), . .	10,516.27	
2,112.64	Bowditch Fund,	2,108.20	
\$3,770,221.27	Amounts carried forward,	\$151,016.19	\$4,705,145.51

Principal, Aug. 1, 1897.		Principal, July 31, 1898.	
\$3,770,221.27	. . Amounts brought forward, . . .	\$151,016.19	\$4,705,145.81
162.10	Bright Fund (balance),	28.00	
27,819.89	Edwin Conant Fund,	27,710.86	
5,309.96	Denny "	5,267.54	
5,264.27	Farrar "	5,258.74	
3,152.11	Haven "	3,126.85	
10,051.19	Hayes "	10,015.86	
5,258.94	Hayward "	5,252.57	
2,387.21	Hollis "	2,371.12	
2,136.06	Homer "	2,128.18	
5,286.49	Lane "	5,276.72	
24,439.38	Lowell "	24,654.52	
60,516.88	Minot "	60,122.38	
7,170.37	Lucy Osgood "	7,101.38	
7,068.07	Mary Osgood "	6,988.36	
4,060.10	Sales "	3,967.16	
5,288.90	Salisbury "	5,331.58	
20,281.49	Sever "	20,048.54	
3,975.31	Shapleigh "	3,960.50	
37,516.71	Sumner "	37,398.22	
5,010.84	Tucker "	5,067.15	
5,294.69	Ward "	5,265.68	
15,878.94	Walker "	15,822.20	
717.14	Waterston Gift (balance),	812.80	
10,082.41	J. Huntington Wolcott Fund, .	10,047.52	
479.50	Sundry Gifts, etc. (unexpended bal.),	546.91	424,086.97

DIVINITY SCHOOL FUNDS.

32,615.90	Divinity School (balance),	\$28,424.39	
37,583.74	Bussey Professorship,	37,583.74	
16,015.81	Parkman "	16,015.81	
6,008.43	Hancock "	6,008.43	
51,845.73	Winn Professorship of Ecclesiastical History,	52,845.73	
38,734.39	Frothingham Professorship, . . .	40,427.07	
20,280.38	Dexter Lectureship,	20,280.38	
9,184.69	Henry Lienow Fund,	9,184.69	
5,250.00	Mary P. Townsend Fund, . . .	5,250.00	
2,100.00	Winthrop Ward "	2,100.00	
1,050.00	Samuel Hoar "	1,050.00	
1,050.00	Abraham W. Fuller "	1,050.00	
1,050.00	Caroline Merriam "	1,050.00	
7,875.00	Joseph Baker "	7,875.00	
40,000.00	Thomas Tileston of New York Endowment,	40,000.00	
10,000.00	Henry P. Kidder Fund,	10,000.00	
17,000.00	Oliver Ames "	17,000.00	
\$4,342,443.24	. . Amounts carried forward, . . .	\$295,645.24	\$5,129,232.78

Principal, Aug. 1, 1897.		Principal, July 31, 1898.	
\$4,342,448.24	Amounts brought forward, . . .	\$395,645.24	\$5,129,232.78
1,000.00	Abby Crocker Richmond Fund,	1,000.00	
71,427.02	New Endowment (1879), . . .	71,427.02	
1,000.00	John L. Russell Fund, . . .	1,000.00	
1,807.78	John W. Quinby " . . .	1,886.74	
10,000.00	William B. Spooner Fund, . . .	10,000.00	
5,000.00	Edwin Conant " . . .	5,000.00	
911.84	Lewis Gould " . . .	911.84	
2,177.95	Joshua Clapp " . . .	2,177.95	
525.00	Hannah C. Andrews " . . .	525.00	
1,000.00	Adams Ayer " . . .	1,000.00	
890.00	Daniel Austin " . . .	890.00	
580.89	Louisa J. Hall " . . .	605.30	
	Haven Fund, . . .	5,000.00	
3,130.37	Rushton Dashwood Burr Fund,	3,238.78	
14,390.06	Jackson Foundation, . . .	14,378.90	
5,273.33	Thomas Cary Scholarships, . . .	5,223.76	
2,596.28	George Chapman " . . .	2,609.73	
4,268.70	Joshua Clapp " . . .	4,335.26	
4,973.78	J. Henry Kendall " . . .	4,991.14	
3,353.91	Nancy Kendall " . . .	3,360.48	
18,110.00	Abner W. Buttrick Fund, . . .	18,042.91	
1,050.00	William Pomroy " . . .	1,050.00	
3,826.84	Beneficiary money returned, . . .	3,994.08	453,393.69

LAW SCHOOL FUNDS.

140,486.93	Law School (balance), . . .	\$70,111.27	
15,750.00	Dane Professorship, . . .	15,750.00	
23,979.82	Bussey " . . .	23,979.82	
8,340.81	Royall " . . .	8,340.81	
94,994.97	Weld " . . .	94,994.97	
62,846.97	Bemis " . . .	65,598.38	
47,021.25	Law School Book Fund, . . .	47,021.25	
	Law School Library Fund, . . .	100,000.00	
850.34	Scholarship money returned, . . .	1,587.48	427,378.96

LAWRENCE SCIENTIFIC SCHOOL FUNDS.

40,805.73	Professorship of Engineering, . . .	\$40,805.73	
61,536.43	Abbott Lawrence Fund, . . .	61,536.43	
50,375.00	James Lawrence " . . .	50,375.00	
30,686.85	John B. Barringer " . . .	30,686.85	
25,000.00	Arthur Rotch " . . .	25,000.00	
5,578.16	George A. Gardner " . . .	5,500.00	
	Edith Rotch " . . .	5,018.23	
	Hennen Jennings Scholarship, . . .	10,274.16	229,196.39
\$5,102,989.70	Amounts carried forward, . . .		\$6,239,101.78

Principal,
Aug. 1, 1897.

Principal, July 31, 1898.

\$5,102,989.70	Amounts brought forward,	\$6,259,101.78
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MUSEUM OF COMPARATIVE ZOOLOGY FUNDS.

1,512.55	Museum of Comparative Zoölogy (bal.),	\$14,639.86	
50,000.00	Gray Fund for Zoölogical Museum,	50,000.00	
297,933.10	Agassiz Memorial Fund, }	297,933.10	
7,594.01	Teachers' and Pupils' " }	7,594.01	
117,469.84	Permanent Fund,	117,469.84	
7,740.66	Humboldt "	7,740.66	
5,493.72	Virginia Barret Gibbs Sch., . .	5,493.81	
104,600.90	Sturgis Hooper Fund,	109,000.65	609,860.93

**PEABODY MUSEUM OF AMERICAN ARCHÆOLOGY
AND ETHNOLOGY FUNDS.**

58.50	Peabody Museum (balance), . . .	\$729.46	
47,864.56	Peabody Professor Fund,	47,408.92	
47,975.84	Peabody Collection "	47,835.10	
28,355.56	Peabody Building "	28,355.56	
10,263.00	Huntington Frothingham Wol-		
	cott Fund,	10,248.49	
80,124.14	Thaw Fund,	80,122.11	
10,952.10	Hemenway Fund,	11,030.70	
5,155.80	Robert C. Winthrop Scholarship,	5,247.78	180,473.12

MEDICAL SCHOOL FUNDS.

75,493.98	Medical School (balance),	\$73,756.32	
19,192.65	Jackson Medical Fund,	19,192.65	
17,129.20	Geo. C. Shattuck "	17,129.20	
100,849.17	George Fabyan "	100,252.40	
50,685.40	William O. Moseley Fund,	52,900.83	
1,042.01	John B. & Buckminster Brown		
	Professorship,	2,011.39	
13,910.28	Warren F'd for Anatom'l Museum,	13,554.84	
3,420.00	Boylston Fund for Medical Prizes,	3,369.45	
3,662.07	Boylston " " " Books,	3,448.41	
1,342.32	Medical Library Fund,	1,400.97	
2,000.00	Quincy Tufts Medical Fund, . .	2,000.00	
25,512.68	Edward M. Barringer " . .	25,512.68	
15,765.11	Mary W. Swett " . .	15,765.11	
20,000.00	Samuel W. Swett " . .	20,000.00	
1,836.08	Samuel E. Fitz " . .	1,836.08	
6,083.77	J. Ingersoll Bowditch " . .	6,074.95	
5,000.00	Dr. Rupperer Fund,	9,335.94	
5,019.60	Surgical Laboratory Fund,	5,000.00	
25,000.00	Henry Willard Williams Fund,	32,540.57	
33,750.00	New Subscription Fund (1888), . .	33,750.00	

\$6,807,277.40	Amounts carried forward, . . .	\$445,831.29	\$7,029,435.83
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Principal, Aug. 1, 1887.		Principal, July 31, 1888.	
\$6,807,277.40	Amounts brought forward, . . .	\$448,831.29	\$7,029,435.88
7.25	John Foster income for Medical Students (balance),	145.82	
5,626.21	D. W. Cheever Scholarship, . .	5,672.07	
6,189.89	C. M. Jones " . .	6,157.66	
6,183.98	Isaac Sweetser " . .	6,183.30	
4,084.17	Charles Pratt Strong Scholarship, . .	4,122.64	
5,098.88	Alfred Hosmer Linder " . .	5,116.49	
	Charles B. Porter " . .	5,369.37	
5,107.72	Edward Wigglesworth " . .	5,180.94	
5,235.55	Geo. Cheyne Shattuck Memorial Fellowship,	5,239.86	
5,202.83	John Ware Memorial Fellowship, . .	5,205.20	
5,472.07	Chas. Eliot Ware " . .	5,486.20	
5,579.46	William H. Thorndike Prize F'd, . .	5,614.52	
	Gifts for Pathological Dep't Library, . .	1,592.34	504,867.90

DENTAL SCHOOL FUNDS.

17,699.10	Dental School (balance),	\$22,599.74	
15,255.85	Dental School Endowment,	15,255.85	
15,572.87	Gifts for Building,	16,089.54	53,895.13

OBSERVATORY FUNDS.

1,461.38	Observatory (balance),	\$1,191.56	
110,298.88	Edward B. Phillips Fund,	110,293.88	
21,000.00	James Hayward "	21,000.00	
82,593.87	David Sears "	83,305.53	
9,801.58	Josiah Quincy "	10,229.93	
2,000.00	Charlotte Harris "	2,000.00	
5,000.00	Thomas G. Appleton Fund,	5,000.00	
13,880.00	Augustus Story "	13,380.00	
50,000.00	Observatory Endowment (1882), . .	50,000.00	
273,557.86	Robert Treat Paine Fund,	273,557.86	
50,000.00	Paine Professorship,	50,000.00	
208,835.04	Uriah A. Boyden Fund,	206,621.45	
	Haven Fund,	45,000.00	
599.60	Bruce Gift (balance),	94.66	
2,500.00	J. Ingersoll Bowditch Fund,	2,500.00	
693.18	Draper Memorial (balance),	1,524.43	825,699.30

OTHER FUNDS FOR SPECIAL PURPOSES.

892,709.18	Bussey Trust (income thereof, $\frac{1}{4}$ to Bussey Institution, $\frac{1}{4}$ to Law Sch'l, and $\frac{1}{4}$ to Divinity School),	\$392,709.18	
15,988.72	Bussey Institution (balance),	15,195.68	
\$7,599,675.97	Amounts carried forward,	\$407,904.86	\$8,413,897.46

Principal, Aug. 1, 1897.		Principal, July 31, 1898.	
\$7,599,675.97	. . Amounts brought forward, . . .	\$407,904.86	\$8,413,897.48
7,718.68	Woodland Hill Fund,	8,946.88	
157,508.00	James Arnold "	157,852.15	
	Arnold Arboretum (balance), . . .	833.20	
1,949.75	Arboretum Construction Gifts, . . .	1,287.24	
	William L. Bradley Fund, . . .	20,655.50	
50,000.00	Bright Legacy,	50,000.00	
42,889.58	Robert Troup Paine Fund, . .	44,257.08	
42,000.00	James Savage " . .	42,000.00	
8,171.50	John Foster " . .	8,171.50	
29,989.88	Henry Harris " . .	29,989.88	
2,000.00	John L. Russell " . .	2,000.00	
16,777.70	Gray Fund for Engravings, . .	16,828.61	
29,848.01	John Witt Randall Fund, . .	31,759.16	
	William M. Prichard Fund, . .	15,191.19	
	Harvard Memorial Society Fund, .	1,208.74	
5,286.98	Gospel Church " . . .	5,517.97	
1,040.00	Fund of the Class of 1834, . . .	1,080.00	
6,500.00	" " " 1844, . . .	6,884.85	
8,725.00	" " " 1853, . . .	8,725.00	
719,978.81	Price Greenleaf Fund,	719,868.81	
5,276.81	O. W. Doe Scholarship,	5,846.87	
5,812.88	Lewis and Harriet Hayden Sch.,	5,718.68	
20,571.18	Gore Annuity Fund (transferred to University Funds).		
5,084.41	Anonymous Annuity Fund,	5,085.71	
	Gifts for the Improvement of The Soldier's Field,	14,579.35	
72,918.60	Charles L. Hancock Fund, . .	78,068.21	
24,553.28	Bursar's Sundry Accounts,	33,002.38	
86,687.62	Gains and Losses for General Invest- ments,	87,638.45	
1,625.00	Sundry Balances,	1,841.72	1,795,836.84

**FUNDS IN TRUST FOR PURPOSES NOT
CONNECTED WITH THE COLLEGE.**

16,500.19	Daniel Williams Fund for the conversion of the Indians,	\$16,451.05	
4,790.22	Sarah Winslow Fund for the Minister and Teacher at Tynga- borough, Mass.,	4,774.77	21,225.89
<u>\$8,968,058.80</u>			<u>\$10,280,960.12</u>

Changes in the Funds during the year ending July 31, 1896.

Total amount of Funds and balances, July 31, 1896, as before stated,	\$10,280,960.12
Total amount of Funds and balances, August 1, 1897, as before stated,	8,963,053.30
Showing a total increase during the year of	<u>\$1,317,906.82</u>

Which is made up as follows:—

Gifts forming new Funds or increasing old ones, .	\$1,146,823.40
Increase of Funds established during the year, . .	3,939.90
Credit balances created,	128,589.77
Gain from change of investments,	15,660.75
	<u>\$1,294,513.82</u>

Deduct from this amount

Decrease more than increase of Funds and balances, which appear both at the beginning and end of the year, .	\$21,912.08
Loss from change of investment,	110.00
Sundry balances used up,	738.65
Decrease of Stock Account, by excess of expenditures over income in College, Library, and University accounts, .	8,846.32
	<u>26,607.00</u>
	<u>\$1,367,906.82</u>

Net increase of Funds and balances as above, . . .	\$148,190.43
Less decrease as above,	<u>26,607.00</u>

Leaving amount of the net increase of the Funds and balances, excluding gifts for capital ac- count, as is also shown in the following table, .	<u>\$121,583.43</u>
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Statement showing Changes in the Different Funds

Increase of Funds and balances which appear both at the beginning and the end of the year, being the excess of income (including gifts for immediate use) over payments towards the special objects of those Funds.

UNIVERSITY.

Retiring Allowance Fund,	\$11,732.78	
Joseph Eveleth Fund,	252.14	
Ingersoll Lecture Fund,	46.52	
Gifts for Phillips Brooks House,	10,635.81	
Lectures on Political Economy Fund,	375.73	
Frank Bolles Memorial Fund,	10.80	
Rogers Fellowship,	644.89	
Henry Lee Memorial Fellowship,	38.99	
Oxias Goodwin Memorial Fellowship,	226.12	
Henry Bromfield Rogers Memorial Fellowship,	34.02	
Harris Fellowship,	223.49	
Whiting Fellowships,	29.06	
John Tyndall Scholarship,	3.86	
Sumner Prize Fund,	120.13	
Robert N. Toppan Prize Fund,	1.81	
George B. Sohler " "	221.31	
John O. Sargent " "	3.85	
James Gordon Bennett Prize Fund,	52.83	
Gifts for Semitic Collection,	5,092.19	\$29,745.19

COLLEGE.

John W. P. Abbot Fund,	\$312.11	
Daniel H. Pierce "	60.06	
Paul Dudley Fund,	37.83	
Henry Gibbs "	2.11	
Thomas Danforth Fund,	32.69	
Anne Mills Fund,	6.86	
Thomas Fitch Fund,	24.52	
Benjamin Wadsworth Fund,	8.83	
John Ellery Fund,	13.07	
Henry Flynt "	4.89	
Joseph Sewall Fund,	6.55	
Nathaniel Appleton Fund,	18.81	
Edward Holyoke Fund,	11.75	
Mary Lindall Fund,	32.16	
Alford Scholarship,	65.94	
Bigelow "	44.79	
Samuel A. Borden Scholarship,	76.78	
Bowditch Scholarship,	53.56	
Bright " (balance),	25.84	
Browne "	10.73	
Burr "	301.13	

Amounts carried forward, \$1,150.44 \$29,745.19

and balances during the year ending July 31, 1898.

Decrease of Funds and balances which appear both at the beginning and the end of the year, being the excess of payments over income received (including gifts for immediate use) for the special objects of those Funds.

UNIVERSITY.

President's Fund,	\$210.88	
Thomas Cotton Fund, . . . . .	.47	
Robert Treat Paine Fellowship,	211.66	
John Parker Fellowships,	353.28	
John Thornton Kirkland Fellowship,	81.06	
James Walker Fellowship,	6.41	
William Hayes Fogg Fund,	4,192.56	
J. W. and Belinda L. Randall (construction),	1,515.13	
Gift for Semitic Library,	205.49	\$6,776.44

COLLEGE.

Gurney Fund,	\$8,530.63	
Henry Flynt's Bequest,	1.14	
Abbot Scholarship,	42.90	
Bartlett "	94.61	
Bassett "	18.59	
R. S. Choate Scholarship,	81.16	
Class of 1814 "	80.71	
" 1841 "	84.47	
George and Martha Derby Scholarship,	9.26	
Farrar Scholarship,	65.20	
Greene "	22.88	
Price Greenleaf Scholarship (balance),	100.00	
Pennoyer Scholarship,	126.09	
Saltonstall "	6.41	
Mary Saltonstall Scholarship,	50.92	
Sever "	8.28	
Shattuck "	50.37	
Stoughton "	322.65	
Gorham Thomas "	24.06	
Townsend "	84.47	
Scholarship and Beneficiary money returned (balance),	187.40	
Price Greenleaf Aid (balance),	1,528.22	
Boylston Prizes for Elocution,	25.40	
John E. Thayer Fund,	60.61	
Henry Warren Torrey Fund,	246.33	
Joseph Lovering Fund,	320.99	
Cyrus M. Warren "	146.85	
Herbarium Fund,	2,757.88	
Frances James Child Memorial Fund,	458.26	
Gifts for College Salaries,	900.00	
Gifts for Historical Library,	84.95	11,821.14
Amount carried forward,		\$18,097.59

*Statement showing Changes in the Different Funds***INCREASE.**

Amounts brought forward,		\$1,150.44	\$29,745.19
Class of 1802 Scholarship,		43.79	
“ 1815 “ (Kirkland),		67.58	
“ 1817 “		35.99	
“ 1828 “		1.94	
“ 1835 “		99.93	
“ 1852 “ (Dana),		15.00	
“ 1867 “		60.12	
Crowninshield “		27.11	
Julius Dexter “		55.78	
W. S. Eliot “		72.20	
Fall River “		9.50	
Richard Augustine Gambrill Scholarship,		72.05	
Charles Haven Goodwin Scholarship,		1.34	
Hodges Scholarship,		325.33	
Ebenezer Rockwood Hoar Scholarship,		46.09	
Levine Hoar Scholarship,		15.96	
Hollis “		55.08	
Henry B. Humphrey Fund,		55.49	
Matthews Scholarships (balance),		80.48	
Merrick “		44.06	
Morey “		41.60	
Lady Mowson Scholarship,		38.30	
Howard Gardner Nichols Scholarship,		223.61	
Wendell Phillips Memorial Scholarship,		1.94	
Lucy Osgood Scholarship,		183.28	
Perkins “		27.20	
Rodger “		52.76	
Henry B. Rogers Scholarship,		48.06	
Edward Russell “		15.92	
Sales “		11.00	
Leverett Saltonstall “		19.90	
Slade “		90.90	
Sewall “		11.11	
Story “		35.59	
Toppan “		18.53	
Walcott “		84.28	
Whiting “		141.90	
Palfrey Exhibition,		1.11	
John Glover Fund,		97.10	
Bowdoin Prizes for Dissertations,		36.40	
Hopkins Gift for “Deturs” (balance),		36.24	
Sales Prize Fund, . . . . .		.30	
Chauncey Wright Fund,		7.25	
Classical Publication Fund of the Class of 1856,		9.00	

Amounts carried forward, \$3,703.84 \$29,745.19

and balances during the year ending July 31, 1898. (Continued.)

DECREASE.

Amount brought forward, \$18,097.58

LIBRARY.

Bright Fund (balance),	\$134.10	
Constantius Fund,	50.98	
Edwin Conant Fund,	108.54	
Subscription for Library (1859),	86.45	
Bowditch Fund,	4.44	
Denny "	42.42	
Farrar "	10.58	
Haven "	25.26	
Hayes "	35.83	
Hayward "	6.37	
Hollis "	16.09	
Lane "	9.77	
Minot "	394.00	
Lucy Osgood Fund,	68.90	
Mary Osgood "	74.71	
Sales "	92.94	
Sever "	217.95	
Shapleigh "	14.81	
Sumner "	118.49	
Ward "	29.01	
Walker "	51.74	
Waterston Gift (balance),	404.34	
J. Huntington Woleott Fund,	84.89	1,962.65

DIVINITY SCHOOL.

Divinity School (balance),	\$4,191.51	
Jackson Foundation,	11.16	
Thomas Cary Scholarship,	49.57	
Abner W. Buttrick Fund,	67.09	4,319.33

LAW SCHOOL.

Law School (balance), transf. to Law School Library Fund, 70,875.66

LAWRENCE SCIENTIFIC SCHOOL.

George A. Gardner Fund, 78.16

MUSEUM OF COMPARATIVE ZOÖLOGY.

Virginia Barret Gibbs Scholarship, 9.91

Amount carried forward, \$94,863.29

*Statement showing Changes in the Different Funds***INCREASE.**

Amounts brought forward,	\$3,703.34	\$29,745.19
George William Sawin Fund,	179.13	
Dr. A. P. Peabody Memorial Fund,	25.06	
Elizabeth Torrey Bequest,	44.31	
Gifts for Sanskrit Department (balance),	906.55	
Gifts for Classical Library (balance),	53.40	
Sundry Gifts (unexpended balances),	722.28	5,634.07

LIBRARY.

Homer Fund,	\$2.07	
Lowell "	215.19	
Tucker "	56.31	
Salisbury Fund,	42.68	
Sundry Gifts (unexpended balances),	67.41	333.66

DIVINITY SCHOOL.

Winn Professorship of Ecclesiastical History,	\$500.00	
Frothingham Professorship,	1,692.68	
Louisa J. Hall Fund,	24.41	
Rushton Dashwood Burr Fund,	108.41	
John W. Quinby Fund,	79.01	
George Chapman Scholarship,	13.45	
Joshua Clapp "	66.56	
J. Henry Kendall "	17.36	
Nancy Kendall "	6.57	
Beneficiary Money Returned,	167.24	2,675.69

LAW SCHOOL.

Bemis Professorship,	\$2,746.41	
Scholarship money returned,	737.14	2,483.55

MUSEUM OF COMPARATIVE ZOÖLOGY.

Museum of Comparative Zoölogy (balance),	\$13,126.81	
Sturgis Hooper Fund,	4,399.75	17,526.56

MEDICAL SCHOOL.

John B. and Buckminster Brown Professorship,	\$64.89	
William O. Moseley Fund,	2,214.93	
Medical Library Fund,	58.65	
Charles Eliot Ware Memorial Fellowship,	14.13	
John Ware Memorial Fellowship,	2.37	
Amounts carried forward,	\$2,354.97	\$59,448.73

and balances during the year ending July 31, 1898. (Continued.)

DECREASE.

Amount brought forward, \$111,188.80

Amount carried forward, \$111,188.80

*Statement showing Changes in the Different Funds***INCREASE.**

Amount brought forward, \$84,531.30

Increase of Funds established during the year.

Harvard Memorial Society Fund,	\$8.74	
William M. Prichard Fund,	191.19	
Unknown Memorial Fund,	1,697.02	
Ralph Hamilton Shepard Memorial Fund, .	86.18	
Asa Gray Professorship of Systematic Botany, .	509.85	
Francis Hathaway Cummings Scholarship,	43.54	
Morey Willard Buckminster "	18.32	
William Hilton "	26.04	
Thayer "	340.67	
Hennen Jennings "	201.76	
Charles B. Porter "	63.54	
John W. and Belinda L. Randall Fund, . .	145.65	
William L. Bradley Fund,	655.50	2,939.90

Credit balances created.

Gifts for the Improvement of The Soldier's Field, . .	\$14,579.35	
Law School Library Fund,	100,000.00	
Gifts for Pathological Department Library,	1,592.84	
Arnold Arboretum,	333.20	
George Emerson Lowell Scholarship,	66.68	
Edith Botch Bequest,	5,018.22	
Gift for greenhouses at the Botanic Garden,	7,000.00	128,589.77

Gain from change of Investments.

Harvard Ellis Fund,	\$8,523.75	
Henry Willard Williams Fund,	7,137.00	15,660.75

Total, \$232,731.77

and balances during the year ending July 31, 1898. (Continued.)

DECREASE.

Amount brought forward, \$111,188.80

Balance, which is the net increase of the Funds and balances for the year ending July 31, 1898, excluding gifts for capital account,	121,583.42
Total,	<u>\$282,721.79</u>

The following tables are not found, in their present form, in the Treasurer's books. They are intended to exhibit with some detail the resources and the expenditures of each department of the University. The income of every Fund held by the University is given in these tables, and also the sum paid out for the specific object of each and every Fund, in case that sum be either less or more than the actual income of the Fund. If the object to which the income of a Fund is to be applied be a general one,—like salaries, for example,—no separate mention is made in these tables of that appropriation. That particular payment is merged with others of the same kind under the general heading. A balanced summary of these tables will be found on page 88.

TABLE NO. I.

THE UNIVERSITY.

RECEIPTS.

Income of the unappropriated fund heretofore called the
Stock Account,

From general investment,	\$18.88	
" special "	<u>3,001.75</u>	\$3,020.63

Income of the following funds:—

Insurance and Guaranty, from special investment,		5,766.31
Israel Munson,		688.27
Leonard Jarvis,		737.81
John C. Gray, from special investment,		1,017.76
George B. Dorr, from special investment, . . .		4,721.09
Francis E. Parker, from special investment, .		4,633.56
Stanton Blake,		218.50
Charlotte F. Blanchard,		208.49
Joseph Lee, from special investment,		407.11
William F. Weld,		
From general investment,	\$4,062.75	
" special "	<u>286.24</u>	4,348.99
Henry P. Kidder,		437.09
George Draper,		2,117.61
Isaac Sweetser,		2,050.10
George Baxter Hyde,		218.50
Harvard Ellis,		
From general investment,	\$2,827.83	
" special "	<u>1,930.69</u>	4,758.52
John W. Carter,		91.03
Theodore Lyman,		200.28
Henry L. Pierce,		1,183.53
Henry L. Pierce Residuary Bequest,		12,563.75
Gore (part),		643.33
Samuel D. Bradford,		<u>229.42</u>

Amount carried forward, \$50,260.99

TABLE NO. I, CONTINUED.

RECEIPTS

Amount brought forward,	\$50,260.99
Income of the following funds (continued) :—	
John Cowdin, from special investment,	1,809.12
John L. Russell	1,021.29
Henry T. Morgan,	8,581.20
Henry Harris, $\frac{1}{2}$ income,	654.17
Seth Turner,	218.50
William Perkins,	1,811.00
Walter Hastings, from special investment, . .	1,178.05
President's,	2,779.71
Thomas Cotton,	6.77
Retiring Allowance,	13,982.78
Lectures on Political Economy,	875.78
Ingersoll Lecture,	237.33
William Belden Noble Lectures,	882.87
William Hayes Fogg,	
Interest,	\$2,466.08
Sales, etc.,	38.88
	<hr/>
William M. Prichard,	191.19
John W. and Belinda L. Randall,	145.65
J. W. and Belinda L. Randall (construction),	2,092.24
Parker Fellowships,	2,446.72
John Thornton Kirkland Fellowship,	468.94
Harris Fellowship,	473.49
James Walker Fellowship,	493.59
Rogers Fellowships,	1,394.82
Robert Treat Paine Fellowship,	536.34
John Tyndall Scholarship,	503.86
Henry Lee Memorial Fellowship,	488.92
Ozias Goodwin " "	451.12
Henry Bromfield Rogers Memorial Fellowship,	484.02
Whiting Fellowships,	929.06
Francis Hathaway Cummings Scholarship, .	45.54
Joseph Eveleth,	1,705.48
Frank Bolles Memorial,	68.30
Sumner Prize,	120.13
George B. Sohler Prize,	250.00
John O. Sargent Prize,	103.35
James Gordon Bennett Prize,	52.88
Robert N. Toppan Prize,	151.81
Ralph Hamilton Shepard Memorial,	36.18
Gifts for Phillips Brooks House,	635.81
" " Semitic Collection,	92.19
" " the improvement of The Soldier's Field, .	108.37
	<hr/>
Amount carried forward,	\$94,770.96

TABLE NO. I, CONTINUED.

RECEIPTS.

Amount brought forward,		\$94,770.96
For immediate use.		
Gift for Semitic Collection and Library,	\$5,000.00	
“ “ Phillips Brooks House,	10,000.00	
“ “ the improvement of The Soldier's Field,	15,699.33	
“ “ one half the cost of the land for a University Infirmary,	3,750.00	\$4,449.38
<hr/>		
Balance remaining after dividing the net income among the Funds,	\$60.32	
Care of the Sarah Winalow Fund,	5.23	
Sale of catalogues, calendars, directories, &c.,	685.61	
“ “ grass and sand,	33.25	
“ “ houses in No. Harvard St., Brighton,	225.00	
Use of houses by College officers,	1,400.00	
Examination fee for degrees of Ph.D.,	30.00	2,439.41
		<hr/>
		\$131,659.75
		<hr/>

PAYMENTS.

Overseers' Expenses.		
Advertising,	\$200.10	
Printing President's Annual Report,	1,211.19	
Printing Treasurer's " "	810.91	
Printing other reports,	609.32	
Stationery and postage,	245.95	
Auditing Treasurer's accounts,	125.00	\$3,702.47
		<hr/>
Office Expenses.		
President's,		
Clerical services,	\$530.00	
Other expenses,	198.25	\$728.25
		<hr/>
Treasurer's,		
Clerical services,	\$780.80	
Other expenses,	753.25	1,534.05
		<hr/>
Bursar's,		
Clerical services,	\$2,524.46	
Other expenses,	1,489.46	4,013.92
		<hr/>
Publication Agent's,		
Clerical services,	\$822.23	
Other expenses,	873.07	1,695.30
		<hr/>
Supt. of Buildings' and Janitor's,	31.72	
Corporation Rooms (fuel, rent, &c.),	2,579.73	10,583.96
		<hr/>
Amount carried forward,		\$13,285.43

TABLE NO. I, CONTINUED.

PAYMENTS.

Amount brought forward,		\$18,285.43	
Salaries.			
President,			
From the University,	\$6,000.00		
" President's Fund,	2,990.09		
" Thomas Cotton Fund,	7.24	\$8,997.33	
Treasurer and Deputy Treasurer,	6,000.00		
Comptroller,	3,750.00		
Bursar,	4,000.00		
Assistant Bursar,	1,000.00		
Corresponding Secretary of the University,	1,850.00		
Recording Secretary of the University,	1,750.00		
Secretary of the Board of Overseers,	200.00		
Publication Agent,	1,750.00		
Clerks Treasurer's office,	3,150.00		
Bursar's Assistant,	1,600.00		
Superintendent of Buildings,	2,400.00	85,947.33	
Memorial Hall and Sanders Theatre.			
Repairs,	\$448.18		
Fuel, lighting, furniture, cleaning, &c.,	859.41	807.59	
General Expenses.			
Repairs and improvements,	\$328.94		
Janitors and cleaning,	1,621.84		
Labor,	4,985.48		
Fuel,	1,056.41		
Services and wages,	78.00		
Water,	321.33		
Lighting,	866.15		
Printing,	503.61		
Annual Catalogue and Calendar,	3,628.90		
Stationery and postage,	761.69		
Advertising,	698.45		
Insurance,	87.50		
Taxes,	1,366.80		
Watchmen,	1,587.89		
Freight, diplomas, supplies, and sundries,	584.72		
Music, Commencement,	185.00		
Cleaning portraits,	157.50		
Surveys and plans,	448.00		
Sidewalk assessments,	1,777.44		
Report on heating apparatus,	750.00		
" " ventilation,	500.00		
Mercantile agency,	725.00		
Acoustical investigation expenses,	390.51		
Deficit in the School of Veterinary Medicine for 1897-98,	1,728.81	24,563.96	
Amount carried forward,		\$74,604.80	

TABLE NO. I, CONTINUED.
PAYMENTS.

Amount brought forward,		\$74,604.39	
Sundry payments made from Special Funds.			
William Hayes Fogg Fund.			
Collections and expenses,	\$5,697.53		
Salary of Director,	1,600.00	\$5,697.53	
Semitic books and binding,		205.49	
Retiring Allowance Fund,		2,250.00	
Ingersoll Lecture Fund,		190.81	
Frank Bolles Memorial Fund,		58.00	
Gifts for the improvement of The Soldiers' Field, .		1,228.40	
J. W. and Belinda L. Randall (construction),		8,607.37	
William Belden Noble Lectures,		600.00	
Gift for one half the cost of land for a University			
Infirmary,		2,750.00	12,567.59
Fellowships and Scholarships.			
John Parker,		\$3,800.00	
Harris,		250.00	
John Thornton Kirkland,		550.00	
James Walker,		500.00	
Rogers,		750.00	
Morgan,		2,000.00	
Robert Treat Paine,		750.00	
Ozias Goodwin Memorial,		225.00	
Henry Lee Memorial,		450.00	
Henry Bromfield Rogers Memorial,		450.00	
George Griswold Van Benschoten,		250.00	
John Tyndall,		500.00	
Whiting,		900.00	
University,		8,100.00	12,475.00
Prizes.			
John O. Sargent,		\$100.00	
Robert Treat Paine,		50.00	
Robert N. Toppan,		150.00	300.00
			<u>\$106,966.89</u>

TABLE NO. II.

THE COLLEGE.

RECEIPTS.

From Term Bills.			
Instruction,	\$358,725.87		
Receipts from College dormitories, not included in			
University Houses and Lands,	76,530.48	\$435,256.35	
Amount carried forward,		<u>\$435,256.35</u>	

TABLE NO. II, CONTINUED.

RECEIPTS.

Amount brought forward,		\$435,256.85
Income of Scholarship Funds.		
Abbot,	\$157.10	
Alford (accumulating),	65.94	
Bartlett,	238.73	
Bassett,	251.41	
Bigelow,	544.72	
Samuel A. Borden (accumulating),	76.78	
Bowditch,	4,886.88	
Bright, $\frac{1}{2}$ income of Bright Legacy,	1,092.50	
Browne,	160.73	
Morey Willard Buckminster,	18.22	
Burr,	1,367.81	
Euluff Sterling Choate,	268.84	
Class of 1802,	843.79	
" 1814,	135.95	
" 1815 (Kirkland),	267.58	
" 1817,	185.99	
" 1828,	151.94	
" 1835,	199.98	
" 1841,	182.19	
" 1852 (Dana),	215.00	
" 1856, from special investment,	600.00	
" 1867,	160.12	
Crowninshield,	498.77	
George and Martha Derby,	240.74	
Julius Dexter,	205.78	
Orlando W. Doe (part),	100.00	
William Samuel Eliot,	238.86	
Fall River,	89.50	
Farrar,	268.14	
Richard Augustine Gambrill,	472.05	
Charles Haven Goodwin. Interest, \$261.76		
Gift,	9.96	
Benjamin D. Greene,	177.12	
Price Greenleaf,	3,000.00	
William Hilton (part),	450.00	
Ebenezer Rockwood Hoar,	446.09	
Levina Hoar, for the town of Lincoln,	265.96	
Hodges,	525.82	
Hollis,	255.08	
Henry B. Humphrey,	455.49	
Hennen Jennings,	201.76	
William Merrick,	244.06	
Morey,	341.60	
Lady Mowson,	238.80	
Amounts carried forward,		\$20,553.49 \$435,256.85

TABLE NO. II, CONTINUED.

RECEIPTS.

Amounts brought forward,		\$20,553.49	\$435,256.35
Income of Scholarship Funds (continued).			
Howard Gardner Nichols,		223.61	
Lucy Osgood (accumulating),		183.28	
Pennoyer,		93.91	
Perkins,		177.20	
Wendell Phillips,		61.70	
Rodger (accumulating),		52.75	
Henry Bromfield Rogers,		148.06	
Edward Russell,		235.28	
Sales,		229.34	
Saltonstall,		193.59	
Leverett Saltonstall,		219.90	
Mary Saltonstall,		299.08	
Savage,		300.00	
Sever,		141.72	
Sewall,		453.69	
Shattuck,		2,099.83	
Slade,		256.96	
Story,		185.59	
Stoughton.			
Interest,	\$52.35		
Special investment,	175.00	227.35	
Thayer.			
From Trustee,	\$1,500.00		
Interest,	1,640.67	8,140.67	
Gorham Thomas,		175.94	
Toppan,		318.53	
Townsend,		1,082.19	
Walcott,		184.28	
Whiting,		475.24	31,713.13
Received for the Warren H. Cudworth Scholarships,			
" " George Emerson Lowell "		400.00	
" " Matthews Scholarships ($\frac{1}{2}$ net rents of Hall),		5,080.48	6,080.48
Income of other Beneficiary Funds.			
"Exhibitions,"		\$58.25	
Palfrey "Exhibition,"		85.39	
Robert Keyne,		85.00	
William Brattle,		54.45	
Henry Gibbs,		15.21	
Ephraim Flynt,		14.78	
Thomas Danforth,		32.69	
Anne Mills,		6.86	
Thomas Fitch,		24.59	
Amounts carried forward,		\$377.10	\$473,050.01

TABLE NO. II, CONTINUED.

RECEIPTS.

Amounts brought forward,	\$377.10	\$473,050.01
Other Beneficiary Funds, income of (<i>continued</i>).		
Benjamin Wadsworth,	8.83	
John Ellery,	18.07	
Henry Flynt,	4.89	
Joseph Sewall,	6.55	
Nathaniel Appleton,	18.31	
Edward Holyoke,	11.75	
Mary Lindall,	32.16	
John Glover (accumulating),	97.10	
Quincy Tufts,	487.47	
Moses Day,	238.12	
Munroe,	460.38	
Samuel Ward, from special investment,	25.00	
Price Greenleaf Aid,	14,137.70	
Dr. Andrew P. Peabody Memorial.		
Interest,	\$184.50	
Repayment	25.56	210.06
Scholarship and Beneficiary Money Returned.		
Returned by beneficiaries,	1,225.88	17,353.95
Income of Prize Funds.		
Ward Nicholas Boylston Prizes for Elocution, .	\$169.60	
James Bowdoin Prizes for Dissertations, . . .	636.40	
Edward Hopkins Gift for "Deturs."		
From Trustees,	\$204.98	
Interest on unexpended balance,	68.39	273.37
Sales,	45.80	1,125.17
Income of Funds for Instruction.		
Alford Professorship,	\$1,212.63	
Boylston "	1,238.33	
Eliot "	944.75	
Eliot " (Jon. Phillips' Gift),	850.00	
Erving "	152.95	
Fisher "	1,572.81	
Asa Gray "	509.85	
Hersey " $\frac{1}{2}$ income of the Fund,	530.09	
Hollis " (Mathematics),	163.74	
Hollis " (Divinity),	1,508.44	
McLean "	1,881.85	
Perkins "	917.70	
Plummer "	1,093.87	
Pope "	2,294.25	
Rumford "	2,468.47	
Smith "	1,011.22	
Amounts carried forward,	\$17,848.45	\$491,529.18

TABLE NO. II, CONTINUED.

RECEIPTS.

Amounts brought forward,		\$17,848.45	\$491,539.13
Income of Funds for Instruction (continued).			
Fund for Permanent Tutors,		709.69	
Thos. Lee, for the Hersey Professorship,		950.21	
Thos. Lee, for Reading,		690.33	
Class Subscription,		6,563.00	
Henry Flynt,		15.03	
Paul Dudley,		137.83	
Professorship of Engineering,		1,783.22	
Abbott Lawrence,		2,689.12	
James Lawrence,		2,201.39	
John B. Barringer,		1,841.02	
Arthur Rotch,		1,092.50	
Gifts for salaries,		5,250.00	41,271.79
<hr/>			
Income of Jonathan Phillips unrestricted Fund, . .		\$1,376.55	
" " John A. Blanchard " "		45.88	
" " Daniel H. Pierce " "		600.61	
" " J. W. P. Abbot Fund (accumulating), .		312.11	
" " John E. Thayer " "		671.67	
" " Fund for Religious Services,		45.19	
" " Gurney Fund,		8,469.37	
" " Classical Publication Fund of the Class of 1856,		309.00	
" " Increase Sumner Wheeler Fund, . . .		2,185.00	
" " Henry Warren Torrey Fund.			
Interest,	\$454.74		
Sales,	323.82	778.06	
" " Elizabeth Torrey Bequest,		44.31	
" " Joseph Lovering Fund for Physical Research,		801.84	
" " Cyrus M. Warren Fund,		107.78	
" " Chauncey Wright Fund,		100.07	
" " George A. Gardner Fund,		243.76	
" " Francis James Child Memorial Fund, .		485.90	
" " George W. Sawin Fund,		179.13	
" " Unknown Memorial Fund,		1,697.02	
Edith Rotch Bequest,	\$5,000.00		
Interest,	18.33	5,018.23	23,123.74
<hr/>			
Hemenway Gymnasium.			
For use of lockers,			4,358.50
<hr/>			
Jefferson Physical Laboratory.			
Income from Endowment,		\$3,277.50	
Interest on unexpended balance,		19.18	3,296.68
<hr/>			
Amount carried forward,			\$563,579.84

TABLE NO. II, CONTINUED.

RECEIPTS.

Amount brought forward,		\$563,579.84
Sanskrit Department.		
Interest on unexpended balance,	\$73.25	
Additional gift from Henry C. Warren,	750.00	
Sale of publications,	154.21	977.46
Botanic Garden and Botanic Museum.		
Income of Botanic Department Fund,	\$1,738.39	
“ “ Lowell Fund,	2,900.89	
“ “ John L. Russell Fund,	21.85	
Use of house,	700.00	
Gifts for present use,	5,500.00	
“ the construction of Greenhouses,	7,000.00	17,861.13
Herbarium.		
Income of Fund,	\$1,166.62	
Income of John L. Russell Fund,	65.55	
Received from Asa Gray's copyrights,	1,806.81	
Sale of check lists, duplicate books, and index cards,	13.24	
“ “ publications,	560.86	3,612.58
Classical Department.		
Sales of publications,		201.30
Sundries.		
For use of rooms by College Society,	\$499.99	
Sale of tickets to Commencement Dinner,	662.00	
“ hymn books,	56.83	
“ publications,	1,424.45	
“ old examination papers,	254.29	
“ keys,	22.00	
“ Geographical models,	363.75	
Fees for admission and condition examinations, . .	2,356.00	
“ Summer Courses,	\$15,185.00	
Other receipts from Summer Courses,	186.21	15,371.21
Fees for use of camp at Martha's Vineyard,	67.69	
Laboratory fees received.		
Chemistry,	\$12,520.22	
Mineralogy,	395.00	
Physics,	2,907.50	
Philosophy,	182.50	
Hygiene,	470.00	
Engineering,	982.50	
Botany,	1,022.50	
Zoölogy,	715.00	
Geology,	752.50	19,947.79
Amounts carried forward,		\$41,025.93 \$586,282.31

TABLE NO. II, CONTINUED.

RECEIPTS.

Amounts brought forward,	\$41,025.93	\$586,232.31
Gifts for books for class-room libraries,	1,350.00	
" cases for cryptogamic collection,	800.00	
Gift for Ropes Prize,	100.00	
" Greek Department,	500.00	
Unexpended appropriation returned,	250.00	
Repayment of advances for books,	16.00	44,041.95
		<u>\$630,274.26</u>

PAYMENTS.

Paid the incumbents of the following Scholarships.

Abbot,	\$200.00
Bartlett,	333.34
Bassett,	270.00
Bigelow,	500.00
Bowditch,	4,833.32
Bright,	1,066.66
Browne,	150.00
Burr,	1,066.68
Buluff Sterling Choate,	800.00
Class of 1802,	800.00
" 1814,	166.66
" 1815 (Kirkland),	200.00
" 1817,	150.00
" 1828,	150.00
" 1835,	100.00
" 1841,	266.66
" 1852 (Dana),	200.00
" 1856,	600.00
" 1867,	100.00
Crowninshield,	466.66
Warren H. Cudworth,	600.00
George and Martha Derby,	250.00
Julius Dexter,	150.00
O. W. Doe,	100.00
William Samuel Eliot,	166.66
Joseph Eveleth,	933.34
Fall River,	80.00
Farrar,	333.34
Richard Augustine Gambrill,	400.00
Charles Haven Goodwin,	300.00
Benjamin D. Greene,	200.00
Price Greenleaf,	3,100.00
Hilton,	450.00
Ebenezer Rockwood Hoar,	400.00
Amount carried forward,	\$18,883.32

TABLE NO. II, CONTINUED.

PAYMENTS.

Amount brought forward,	\$18,883.32	
Paid the incumbents of the following Scholarships (<i>conf'd</i>).		
Levina Hoar, for the town of Lincoln,	250.00	
Hodges,	200.00	
Hollis,	200.00	
Henry B. Humphrey,	400.00	
George Emerson Lowell,	333.34	
Matthews,	5,000.00	
William Merrick,	200.00	
Morey,	300.00	
Lady Mowison,	200.00	
Pennoyer,	220.00	
Rebecca A. Perkins,	150.00	
Wendell Phillips Memorial,	53.34	
Henry Bromfield Rogers,	100.00	
Edward Russell,	200.00	
Sales,	166.66	
Saltonstall,	200.00	
Leverett Saltonstall,	200.00	
Mary Saltonstall,	350.00	
Savage,	300.00	
Bever,	150.00	
Sewall,	400.00	
Shattuck,	2,150.20	
Slade,	166.66	
Story,	150.00	
Thayer,	2,800.00	
Gorham Thomas,	200.00	
Toppan,	300.00	
Townsend,	1,116.66	
Walcott,	100.00	
Whiting,	333.34	\$35,773.52
Paid other Beneficiaries from the following Funds.		
Exhibitions,	\$58.25	
Palfrey Exhibition,	80.00	
Quincy Tufts,	487.47	
Day,	248.12	
Munroe,	460.38	
Samuel Ward,	25.00	
Price Greenleaf Aid,	15,666.00	
Robert Keyne,	85.00	
William Brattle,	54.45	
Henry Gibbs,	13.10	
Ephraim Flynt,	14.78	
Dr. Andrew P. Peabody Memorial,	183.00	
Scholarship and Beneficiary money returned,	1,412.78	18,780.28
Amount carried forward,		\$54,553.80

TABLE NO. II, CONTINUED.

PAYMENTS.

Amount brought forward,		\$54,553.80	
Prizes.			
Boylston Prizes for Elocution,	\$195.00		
Bowdoin Prizes for Dissertations,	600.00		
Sales,	45.00		
"Detours" from Hopkins Donation,	255.13	1,075.13	
Sundry payments made from Special Funds.			
John E. Thayer Fund.			
Expenses of Quarterly Journal of Economics, . .	\$782.28		
Henry Warren Torrey Fund.			
Expenses on account of Harvard Historical Studies, .	1,024.39		
Cyrus M. Warren Fund.			
Expenses in Chemical Department,	414.10		
George A. Gardner Fund.			
Photographs, &c., for Geological Department, . .	342.37		
Chauncey Wright Fund.			
Books for Mathematical Department,	32.14		
Stoughton Scholarship Fund.			
Expenses on account of Stoughton Pasture, . . .	550.00		
The Joseph Lovering Fund for Physical Research.			
Expenses for physical research,	675.23		
Classical Publication Fund of the Class of 1856.			
Printing Studies in Classical Philology,	300.00		
Francis James Child Memorial Fund,	1,208.79	5,274.90	
Jefferson Physical Laboratory.			
Spent on building and fixtures,	\$388.54		
Laboratory expenses,	\$4,299.59		
Less part paid by the College,	600.00	3,699.59	3,788.13
Botanic Garden and Botanic Museum.			
Salaries, labor, repairs, materials, &c.,	\$9,377.36		
Interest on advances,	680.72	10,058.08	
Herbarium.			
Salaries, labor, repairs, materials, &c.,		6,370.41	
Hemenway Gymnasium.			
Salaries and wages,	\$7,299.63		
Janitors and cleaning,	2,446.26		
Fuel, water, gas, printing, and sundries,	2,402.59		
Repairs and improvements,	751.02		
Apparatus,	750.00	\$13,649.50	
Less amount received from other departments, .	1,760.06	11,889.44	
Amount carried forward,		\$93,009.89	

TABLE NO. II, CONTINUED.

PAYMENTS.

Amount brought forward,		\$98,009.89	
Appleton Chapel.			
Preaching and morning services,	\$2,978.80		
Organist and Choir-master,	1,750.00		
Choir,	1,500.00		
Music and binding,	374.87		
Fuel, gas, cleaning, &c.,	768.88		
Services and wages,	229.00	7,599.00	
Summer Schools.			
Salaries,	\$11,417.50		
Clerical services,	400.00		
Supplies, materials, cleaning, &c.,	779.81		
Printing,	399.02		
Advertising,	240.48		
Instruments and apparatus,	80.80		
Stationery and postage,	132.15	13,399.06	
Paid from gifts for books for Political Economy Dept.,			
" " " " French " "	\$100.26		
" " " " German " "	185.72		
" " " " Sanskrit " "	85.26		
" " " " English " "	116.76		
" " " " Architectural " "	13.66		
" " " " Social Questions,	344.27		
" " " " Classical Library,	12.02		
" " " " Historical " "	147.90		
" " " " " "	84.95	990.80	
Paid from gifts for illustrated lectures in Latin and Greek			
Departments,	\$32.38		
" " Harvard Oriental Series,	70.91		
" " Cryptogamic Herbarium,	875.35		
" " Geographical Models, and sales . . .	454.08	1,482.72	
Appropriations for collections, laboratories, &c.			
Physical apparatus (Prof. Trowbridge),	\$1,000.00		
Chemistry (Prof. H. B. Hill),	500.00		
Mineralogy (Prof. Wolff),	500.00		
Petrography (Prof. Wolff),	150.00		
Geology (Prof. Davis),	550.00		
Geography (Prof. Davis),	120.00		
Mining and Metallurgy (Asst. Prof. Smythe), . . .	450.00		
Botany (Prof. Goodale),	250.00		
Botany (Prof. Farlow),	200.00		
Zoölogy (Prof. Mark),	400.00		
Amounts carried forward,		\$4,120.00	\$116,481.47

TABLE NO. II, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$4,120.00	\$116,431.47
Appropriations for collection, laboratories, &c. (<i>conf'd</i>).		
Zoölogy, for publications,	400.00	
Psychology and Psychological Review (Prof. Münsterberg),	150.00	
Fine Arts and Drawing (Prof. Moore),	350.00	
Anthropology (Prof. F. W. Putnam),	200.00	
Laboratory fees appropriated,	18,965.22	
Fuel and services in Nat. Hist. Laboratories,	1,500.00	
Fuel, services, &c., in Jefferson Ph. Laboratory, . . .	600.00	26,235.22
Salaries.		
Instruction,	\$333,143.11	
Deans,	4,000.00	
Chairmen of Committees,	1,700.00	
Medical Visitor, Recorder, Secretary and Curator, . .	4,600.00	
Examination Proctors,	1,480.50	844,923.61
Payments for College Edifices not valued on Treasurer's books.		
Cleaning and care,	\$17,678.65	
Insurance,	418.00	
Repairs, improvements, &c.,	8,287.48	26,384.13
General Expenses.		
Deans and Chairmen of Committees, clerical and office expenses,	\$9,207.07	
Commission on Admission to N. E. Colleges,	122.20	
Reading examination books,	2,034.00	
Services of proctors,	1,449.49	
" assistants to instructors,	4,295.24	
" undergraduates,	314.55	
" mechanics in department of Physiology and Hygiene,	900.00	
" mechanics in department of Electrical Engineering,	1,165.05	
" mechanics in department of Mechanical Engineering,	1,254.70	
" Head Guide in College grounds,	45.82	
Expenses in History 18,	165.50	
" of Military drill,	203.80	
" of summer expeditions, Scientific School, . . .	584.18	
Attendants in department libraries and laboratories, .	1,707.40	
Admission examinations,	2,440.49	
Lawrence Scientific School Scholarships and assistance,	3,950.00	
Electric power,	550.00	
Amounts carried forward,	\$30,389.59	\$514,034.42

TABLE NO. II, CONTINUED.

PAYMENTS.

Amounts brought forward,		\$30,889.59	\$514,024.43
General Expenses (continued).			
Pews hired in Cambridge churches,		1,727.50	
Commencement Dinner,		614.19	
Fuel,		6,385.13	
Water,		1,884.02	
Lighting,		4,244.62	
Printing office, expenses,	\$17,607.66		
Less receipts,	<u>14,012.89</u>	3,594.77	
Printing,		2,589.70	
Furniture,		675.50	
Instruments and apparatus,		1,110.11	
Stationery and postage,		1,534.72	
Books,		602.28	
Binding,		148.95	
Advertising,		1,518.71	
Watchmen,		1,034.09	
Freight, diplomas, and sundries,		946.96	
Supplies, tools, and materials,		2,162.19	
Legal services,		72.00	
Music, Class-Day,		125.00	
Receptions,		124.19	
Use of Grays 18 by English department,		100.00	
Repayment to Mus. of Comp. Zoölogy for expendi- tures on behalf of the Undergraduate Department,		18,250.00	79,384.17
			<u>\$593,858.60</u>

TABLE NO. III.

THE LIBRARY.

RECEIPTS.

Income of the following Funds for the purchase of books.

Subscription for Library (1859),	\$461.17	
Nathaniel I. Bowditch,	92.84	
Bright, $\frac{1}{2}$ income of the Bright Legacy,	1,092.50	
Edwin Conant, $\frac{1}{2}$ income,	308.92	
Constantius, $\frac{1}{2}$ income. Interest,	\$568.47	
Sales,	<u>8.20</u>	576.67
Denny,		232.06
Eliza Farrar,		230.04
Horace A. Haven,		137.74
Francois B. Hayes. Interest,	\$439.23	
Gift,	<u>10.00</u>	449.23
George Hayward,		<u>229.82</u>
Amount carried forward,		\$3,805.48

TABLE NO. III, CONTINUED.

RECEIPTS.

Amount brought forward,	\$8,805.48	
Income of the following Funds, &c. (continued).		
Thomas Hollis,	104.31	
Sidney Homer,	93.34	
Frederick A. Lane,	231.00	
Lowell,	1,067.98	
Charles Minot,	2,644.55	
Lucy Osgood,	313.33	
Mary Osgood,	308.65	
Francis Sales,	177.42	
Stephen Salisbury,	231.13	
Sever,	885.41	
Samuel Shapleigh,	173.71	
George B. Schier (part),	35.80	
Charles Sumner,	1,639.49	
Ichabod Tucker, from special investment, . . .	200.00	
James Walker,	693.69	
Thomas W. Ward,	231.39	
Executors of Robert Waterston.		
Interest,	\$31.33	
Sales,	10.00	41.33
J. Huntington Wolcott,	440.68	\$13,316.59
James Savage Fund for general expenses ($\frac{1}{2}$ income),	\$1,161.55	
Edwin Conant " " " " " "	911.77	
Constantius " " " " " "	568.47	
Daniel Treadwell " " " " " "	521.12	
Daniel Austin " " " " " "	272.25	
Eben Wright " " " " " "	4,370.00	
Jarvis " " " " " "	21.85	
Price Greenleaf " " " " " "	14,137.78	31,364.79
Fees for use of Library,	\$75.00	
Sale of Scudder catalogues,	24.00	
Sale of duplicate books,	188.25	
Received for books lost,	34.90	
Repayment of part of general average deposit, . . .	15.55	
Fines,	73.95	
Gifts for books,	125.57	
Gift for Dante Collection,	100.00	637.33
		<u>\$35,910.60</u>

PAYMENTS.

For Books, from	
Subscription Fund (1859),	\$497.62
Bowditch "	96.78
Bright "	1,326.60
Conant "	412.46
Amount carried forward,	<u>\$2,333.46</u>

TABLE NO. III, CONTINUED.

PAYMENTS.

Amount brought forward,	\$3,233.46	
For Books, from (continued).		
Constantius Fund,	627.65	
Denny "	274.47	
Farrar "	248.43	
Haven "	163.00	
Hayes "	485.06	
Hayward "	236.19	
Hollis "	120.40	
Homer "	91.27	
Lane "	240.77	
Lowell "	852.79	
Minot "	3,038.55	
Lucy Osgood "	382.32	
Mary Osgood "	383.36	
Sales "	270.36	
Salisbury "	188.45	
Sever "	1,103.36	
Shapleigh "	188.52	
Sohier "	64.49	
Sumner "	1,757.98	
Tucker "	143.69	
Walker "	745.43	
Ward "	260.40	
Waterston "	445.67	
J. Huntington Wolcott Fund,	475.47	
Coolidge Gifts,	169.85	
Gardner Gift,	10.90	
Furness Gift,	13.99	
Subscription of 1880,	37.21	
Dante Society Gift,	31.77	
Duplicate money,	133.21	\$15,418.40
Salaries,	\$12,791.08	
Services and wages,	17,821.44	
Repairs and improvements,	575.35	
Janitors and cleaning,	824.33	
Fuel,	973.49	
Water,	21.17	
Lighting,	1,279.72	
Printing,	1,787.98	
Furniture,	222.05	
Stationery and postage,	416.39	
Binding,	2,008.51	
Insurance,	51.70	
Freight, supplies, and sundries,	618.89	39,372.68
		<u>\$54,791.08</u>

TABLE No. IV.
DIVINITY SCHOOL.

RECEIPTS.

Income of the following Funds applicable to Salaries.

Divinity School, balance,	\$1,425.33	
Benjamin Bussey Professorship,	1,642.42	
Parkman Professorship,	699.90	
John Hancock Professorship,	\$262.55	
C. L. Hancock. Interest,	3,055.33	
From special investments,	318.31	3,636.19
Winn Professorship of Ecclesiastical History,	2,265.67	
Frothingham Professorship,	1,692.68	
Samuel Dexter,	886.24	
Henry Lienow,	401.88	
Mary P. Townsend,	229.42	
Winthrop Ward,	91.77	
Samuel Hoar,	45.88	
Abraham W. Fuller,	45.88	
Caroline Merriam,	45.88	
Joseph Baker,	344.14	
Thomas Tileston of New York Endowment,	1,748.00	
Henry P. Kidder,	487.00	
Oliver Ames,	742.90	
Abby Crocker Richmond,	43.70	
New Endowment (1879),	3,121.36	
William B. Spooner,	487.00	\$19,962.73

Income of Scholarship and Beneficiary Funds.

Jackson Foundation,	\$628.84	
Thomas Cary,	230.43	
George Chapman,	113.45	
Joshua Clapp,	186.56	
J. Henry Kendall,	217.36	
Nancy Kendall,	146.57	
William Pomroy,	45.88	
Abner W. Buttrick,	572.91	
Beneficiary money returned (balance),	167.24	2,309.24

Income of other Funds.

Joshua Clapp,	\$95.18	
Hannah C. Andrews,	22.94	
Lewis Gould,	39.81	
Haven,	27.81	
Daniel Austin,	38.89	
Adams Ayer,	43.70	
John W. Quinby,	79.01	
John L. Russell,	43.70	
Edwin Conant,	218.50	

Amounts carried forward, \$609.04 \$22,291.97

TABLE NO. IV, CONTINUED.

RECEIPTS.

Amounts brought forward,	\$609.04	\$22,291.97
Income of other Funds (<i>continued</i>)		
Louisa J. Hall,	25.89	
Rushton Dashwood Burr,	136.78	
Benjamin Bussey Trust ($\frac{1}{4}$ net income for use of this School),	5,252.18	6,038.39
Sale of duplicate books, &c.,	\$45	
" tickets to Alumni Dinner,	28.00	
Fines,	4.85	
Term Bills.		
Instruction,	\$5,142.24	
Receipts from Divinity Hall,	2,961.50	8,103.74
		8,187.04
		<u>\$86,452.40</u>

PAYMENTS.

Salaries for instruction,	\$26,991.56	
Secretary and Librarian,	1,750.00	
Services and wages,	779.94	
Cataloguing,	1,076.00	
Labor, repairs, and improvements,	1,087.51	
Cleaning and care of rooms,	1,279.88	
Fuel,	452.75	
Water,	74.00	
Lighting,	211.83	
Printing,	614.39	
Furniture,	188.26	
Stationery and postage,	34.80	
Books,	752.17	
Binding,	55.00	
Insurance,	166.03	
Advertising,	147.67	
Diplomas and sundries,	63.87	
Taxes on Chelsea Real Estate,	37.84	
Collation,	70.00	
Proportion of expenses of Gymnasium,	119.73	\$35,897.23
Paid the incumbents of the following Scholarships:		
Jackson Foundation,	\$640.00	
Thomas Cary,	280.00	
George Chapman,	100.00	
Joshua Clapp,	120.00	
J. Henry Kendall,	200.00	
Nancy Kendall,	140.00	1,480.00
Amount carried forward,		<u>\$37,877.23</u>

TABLE NO. IV, CONTINUED.

PAYMENTS.

Amount brought forward,		\$37,377.23
Paid beneficiaries from the following Funds:		
Abner W. Buttrick,	\$640.00	
William Pomroy,	49.46	689.46
Paid for Books from the following Funds:		
Louisa J. Hall,	\$.98	
Rushton Dashwood Burr,	28.37	29.35
		<u>\$38,096.04</u>

TABLE NO. V.
LAW SCHOOL.

RECEIPTS.

Income of the following Funds.		
Law School, balance,	\$6,139.28	
Nathan Dane Professorship,	688.27	
Benjamin Bussey "	1,047.93	
Isaac Royall "	864.50	
Weld "	4,151.28	
Bemis "	2,746.41	
Law School Book Fund,	2,054.82	
Benjamin Bussey Trust ($\frac{1}{2}$ net income for use of this School),	5,252.18	
Scholarship money returned,	37.14	\$22,481.81
Term Bills, instruction,		80,200.00
Repayment of Scholarship money with interest,		700.00
		<u>\$103,381.81</u>

PAYMENTS.

Salaries for instruction,	\$41,250.00
Librarian and Assistants,	5,140.29
Secretary,	625.00
Reader to the Dane Professor,	382.28
Services of proctors,	334.25
Scholarships,	8,000.00
Repairs and improvements,	2,253.92
Janitor, cleaning, &c.,	1,481.42
Fuel,	736.53
Water,	84.50
Lighting,	693.92
Printing,	608.11
Furniture,	172.08
Stationery and postage,	417.14
Amount carried forward,	<u>\$57,379.44</u>

TABLE NO. V, CONTINUED.

PAYMENTS.

Amount brought forward,	\$57,379.44	
Books,	7,402.31	
Binding,	1,597.52	
Advertising,	120.00	
Freight, diplomas, and sundries,	438.06	
Proportion of expenses of Gymnasium,	1,640.33	
Insurance,	1,480.68	
Travelling expenses,	215.58	
Electric power,	50.00	\$70,273.92

TABLE NO. VI.

MEDICAL SCHOOL.

RECEIPTS.

Income of the following Funds.

Medical School, balance,	\$3,278.09
Jackson,	838.78
Warren, for Anatomical Museum,	607.87
Ward Nicholas Boylston, for Medical Prizes,	149.45
Ward Nicholas Boylston, " " Books,	160.08
George C. Shattuck,	748.54
George Fabyan,	4,407.10
John B. and Buckminster Brown,	64.89
Hersey Professorship, $\frac{1}{2}$ income of the fund,	858.89
Medical Library,	58.65
Quincy Tufts,	87.40
David Williams Cheever Scholarship,	245.86
Isaac Sweetser Scholarship,	269.37
O. W. Doe "	100.00
C. M. Jones "	208.27
Charles Pratt Strong Scholarship,	178.47
Alfred Hosmer Linder "	222.61
Lewis and Harriet Hayden "	254.03
Edward Wigglesworth "	223.22
Charles B. Porter "	183.54
William Hilton " (part),	225.00
George Cheyne Shattuck Memorial Fellowship,	228.81
John Ware " "	227.37
Charles Eliot Ware " "	239.18
Edward M. Barringer,	1,114.92
John Foster Fund, income for Medical Students every second year,	138.57
William H. Thorndike Prize,	235.06
Henry Harris, $\frac{1}{2}$ income,	654.16
Amount carried forward,	\$15,763.43

TABLE No. VI, CONTINUED.

RECEIPTS.

Amount brought forward,	\$15,763.43	
Income of the following Funds (continued).		
Mary W. Swett,	688.93	
Samuel W. Swett,	874.00	
Samuel E. Fitz,	80.23	
J. Ingersoll Bowditch,	263.87	
New subscription (1888),	1,693.37	
Surgical Laboratory,	219.37	
William O. Moseley,	2,214.93	
Dr. Ruppaner,	297.47	
Gifts for Pathological Department Library,	35.87	
Ellis Gifts,	41.33	\$32,174.90
		<hr/>
Gifts for present use,		8,275.00
Term Bills.		
Instruction,	\$104,006.83	
Graduation fees,	3,720.00	
Matriculation fees,	760.00	
Examination fees and fines,	489.00	
In Chemistry, breakage and chemicals,	1,333.01	
In Physiology, material,	294.00	
In Practical Anatomy, material,	1,116.50	
In Operative Surgery, fees,	204.00	
In Bandaging, fees,	89.40	111,962.74
		<hr/>
From Dental and Veterinary Schools for laboratory instruction,	\$2,794.00	
Repayment of advances for the purchase of microscopes,	391.00	
Use of room by Harvard Coöperative Society,	150.00	8,335.00
		<hr/>
		<u>\$145,747.54</u>

PAYMENTS.

Boylston Medical Prizes.		
Prizes,	\$150.00	
Advertising,	50.00	\$200.00
Warren Anatomical Museum.		
Expenses and additions to collection,		963.31
J. Ingersoll Bowditch Fund, Physiological apparatus, &c.,		274.69
George Fabyan Fund, wages and expenses,		1,003.87
Ellis Gifts, services and expenses, Physiology and Pathological Bacteriology,		301.10
Boylston Fund for Books, books and binding,		373.69
Sear's Gifts, books for Pathological Department,		443.53
Faculty Scholarships,	\$880.00	
Edward M. Barringer Scholarship No 1,	\$180.00	
“ “ “ “ “ 2,	200.00	380.00
		<hr/>
Amounts carried forward,	\$1,260.00	\$3,560.19

TABLE NO. VI, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$1,260.00	\$3,560.19
David Williams Cheever Scholarship,	200.00	
O. W. Doe Scholarship,	60.00	
Joseph Eveleth Scholarships,	520.00	
Lewis and Harriet Hayden Scholarship,	348.18	
Hilton Scholarship,	225.00	
C. M. Jones Scholarship,	250.00	
Alfred Hosmer Linder Scholarship,	200.00	
Charles B. Porter "	120.00	
Charles Pratt Strong "	140.00	
Isaac Sweetser Scholarship,	250.00	
Edward Wigglesworth Scholarship,	200.00	
George Cheyne Shattuck Memorial Fellowship,	225.00	
Charles Eliot Ware Memorial Fellowship,	225.00	
John Ware Memorial Fellowship,	225.00	4,448.18
Chemistry,	\$1,388.01	
Physiology,	1,014.00	
Anatomy,	1,900.00	
Pathology,	600.00	
Bacteriology,	500.00	
Obstetrics,	150.00	
Histology and Embryology,	550.00	
Therapeutics and Hygiene,	200.00	
Pharmacology,	700.00	
Clinical Medicine,	275.00	
Clinical Surgery,	79.50	
Bandaging and apparatus,	150.00	7,451.51
Graduates courses, fees repaid to instructors,	\$2,475.00	
Summer " " " "	3,129.00	5,604.00
Salaries for instruction,		92,200.00
Dental School, for laboratory instruction,		1,816.00
General Expenses.		
Dean, and Secretary,	\$800.00	
Repairs and improvements,	2,921.98	
Janitor and cleaning,	5,055.34	
Fuel,	1,832.86	
Water,	717.60	
Lighting,	2,446.97	
Printing,	306.57	
Binding,	68.90	
Furniture,	231.86	
Instruments and apparatus,	21.44	
Stationery and postage,	627.05	
Advertising and catalogues,	1,000.00	
Insurance,	797.00	
Amounts carried forward,	\$16,627.57	\$115,078.88

TABLE NO. VI, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$16,827.57	\$115,078.88
General Expenses (continued).		
Proctors,	595.00	
Collation,	237.13	
Mechanics and laboratory attendants,	7,091.24	
Legal services,	10.00	
Electric fan,	575.00	
" work,	228.75	
" power,	887.98	
Freight, diplomas, and sundries,	531.01	
Supplies and material,	1,310.54	
Elevator,	1,375.00	29,669.22
		<u>\$144,748.10</u>

TABLE NO. VII.

DENTAL SCHOOL.

RECEIPTS.

Income of the following Funds.		
Dental School, balance,	\$816.40	
Endowment,	666.89	
Gifts for new building,	467.17	\$1,949.26
		<u> </u>
Term bills for instruction,	\$17,875.00	
Fees from Laboratory,	2,679.83	20,054.83
		<u> </u>
From Veterinary School for laboratory instruction,		200.00
From Medical School " "		1,815.00
Fees from Infirmary,		6,639.98
Gifts for present use,		15.00
Repayment of advances for the purchase of microscopes,		96.95
		<u><u>\$30,771.02</u></u>

PAYMENTS.

Salaries for instruction,	\$12,146.00
Curator,	50.00
Medical School, for instruction,	2,300.00
Proctors,	125.00
Repairs and improvements,	680.18
Janitors and cleaning,	1,445.10
Fuel,	408.38
Water,	106.80
Lighting,	205.50
	<u> </u>
Amount carried forward,	\$17,446.96

TABLE NO. VII, CONTINUED.

PAYMENTS.

Amount brought forward,	\$17,448.96	
Printing,	685.22	
Furniture,	18.70	
Instruments and apparatus,	116.77	
Stationery and postage,	128.72	
Advertising,	408.58	
Services and wages,	762.94	
Supplies, &c.,	4,449.49	
Freight, diplomas, and sundries,	469.33	
Physiology,	880.00	
Chemical apparatus,	300.00	
Delegates expenses,	86.50	
Legal expenses,	200.00	\$25,403.21

TABLE NO. VIII.

MUSEUM OF COMPARATIVE ZOÖLOGY.

RECEIPTS.

Income of the following Funds.

Balance,	\$66.12	
Gray Fund for Zoölogical Museum,	2,185.00	
Agassiz Memorial, interest,	\$12,762.98	
From special investment,	293.69	13,056.67
Teachers and Pupils,	331.86	
Humboldt,	338.28	
Permanent Fund for Museum of Zoölogy,	5,133.40	
Virginia Barret Gibbs Scholarship,	240.09	
Sturgis Hooper,	4,571.06	\$25,922.46
Repayment by the College for expenditures on behalf of the Undergraduate Department,	\$18,350.00	
Less advances for building, repaid with interest,	6,167.89	12,062.61
		<u>\$38,005.09</u>

PAYMENTS.

Paid on the order of the Faculty of the Museum of Comparative Zoölogy, from the following Funds.

Gray,	\$2,185.00	
Agassiz Memorial, general expenses,	12,078.59	
Teachers and Pupils,	331.86	
Humboldt,	338.28	
Permanent,	5,133.40	\$20,067.13
Sturgis Hooper, expenses on account of Profes- sorship of Geology,	\$171.81	
Virginia Barret Gibbs Scholarship,	250.00	421.81
		<u>\$20,488.44</u>

TABLE No. IX.

**PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY
AND ETHNOLOGY.**

RECEIPTS.

Income of the following Funds.

Peabody Professor.

From general investment,	\$1,229.96	
" special "	<u>1,038.84</u>	\$2,268.82

Peabody Collection.

From general investment,	\$1,256.68	
" special "	<u>1,038.84</u>	2,295.52

Peabody Building.

From general investment,	\$736.04	
" special "	<u>622.32</u>	1,358.36

Huntington Frothingham Wolcott, 448.49

Thaw. From general investment, \$426.86

" special " 700.00 1,126.86

Hemenway, 478.60

Robert C. Winthrop Scholarship, 225.32 \$8,201.97

Gifts for present use, \$1,450.00

Term bills for instruction, 403.56

Dividend on bank deposit, 8.38 1,856.94

\$10,058.91

PAYMENTS.

Paid from the following Funds.

Peabody Professor, \$2,229.56

Peabody Collection, 2,935.76

Peabody Building, 1,358.36

Huntington Frothingham Wolcott, 463.00

Thaw, 1,128.89

Hemenway, 400.00

Robert C. Winthrop Scholarship, 183.34 8,648.91

From fees for instruction, 403.56

From gifts, &c., 782.42

\$9,834.89

TABLE No. X.
OBSERVATORY.

RECEIPTS.

Income of the following Funds.

Balance,	\$63.85	
Edward B. Phillips,	4,819.85	
James Hayward,	917.70	
Robert Treat Paine,	11,954.48	
Paine Professorship of Practical Astronomy, . . .	2,185.00	
Uriah A. Boyden,	9,126.09	
Augustus Story,	584.71	
David Sears,	1,424.81	
Josiah Quincy,	428.85	
James Savage ($\frac{1}{2}$ net income),	388.85	
Charlotte Harris,	87.40	
Thomas G. Appleton,	218.50	
J. Ingersoll Bowditch,	109.25	
Haven,	245.81	
New Endowment (1882),	2,185.00	\$34,784.15
Sale of Observatory publications,	\$41.07	
" grass,	20.00	61.07
Mrs. Henry Draper, gift for special research (ad- ditional),	\$9,999.96	
Interest on unexpended balance,	30.28	10,080.24
Use of house by College officer,	\$600.00	
From A. Lawrence Rotch on account of publishing Annals,	750.00	1,350.00
		<u>\$46,175.46</u>

PAYMENTS.

From Uriah A. Boyden Fund, supplies, apparatus, services, &c.,	\$11,339.68
" Draper Memorial, supplies, apparatus, services, &c., . . .	9,198.99
" Bruce gift, supplies, apparatus, &c.,	504.94
Salaries,	\$10,950.00
Services and wages,	7,807.77
Repairs and improvements on buildings and grounds, . .	2,420.81
Cleaning and care of Observatory,	504.85
Fuel,	333.54
Water,	79.10
Lighting,	27.75
Printing,	1,129.01
Furniture,	111.96
Instruments and apparatus, including repairs on same, .	766.77
Stationery, postage, and telegraphing,	535.10
Amounts carried forward,	<u>\$24,166.16</u> <u>\$21,043.61</u>

TABLE NO. X, CONTINUED.

PAYMENTS.

Amounts brought forward,	\$24,166.16	\$21,043.61
Books,	446.90	
Binding,	245.99	
Supplies and materials,	906.70	
Freight, chemicals, and sundries,	222.25	
Use of house,	90.00	
Electric power,	70.44	26,148.44
		<u>\$47,192.05</u>

TABLE NO. XI.

BUSSEY INSTITUTION.

RECEIPTS.

Interest on unexpended balance,	\$696.82	
Bussey Trust ($\frac{1}{2}$ net income),	10,504.86	
Woodland Hill Fund (part),	182.44	
Fees for instruction,	575.00	
Sale of wood, hay, and sundries,	251.39	
Sale of animals,	40.00	
Horticultural Department, prizes, sale of flowers, plants, &c.,	2,366.55	
Board of horses, cattle, &c.,	2,647.53	
Use of house by College officer,	600.00	<u>\$17,963.59</u>

PAYMENTS.

Salaries,	\$6,400.00	
Services and wages,	2,693.90	
Repairs and improvements,	793.64	
Fuel,	316.00	
Gas,	98.87	
Water,	8.00	
Printing,	74.25	
Furniture,	10.88	
Books,	106.33	
Advertising,	28.00	
Insurance,	47.00	
Horticultural Department, expenses,	2,534.65	
Grain, farming tools, &c.,	1,082.02	
Sundries,	52.74	
Rebuilding Whitney barn,	3,900.00	
Repairing driveway to Bussey Mansion House	453.40	<u>\$18,601.43</u>

TABLE NO. XI, CONTINUED.

James Arnold Fund.*Receipts.*

Income of Fund,	\$6,883.10
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Payments.

19/20 income carried to Arnold Arboretum,	\$6,588.95
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Arnold Arboretum.*Receipts.*

Income of James Arnold Fund,	\$6,588.95	
" William L. Bradley Fund,	655.50	
Interest on gifts for construction account,	87.49	
Interest on deposit,	11.20	
Sale of grass and materials,	1,824.58	
Gifts for present use,	8,800.00	
Gift for the purchase of books,	2,888.87	<u>15,951.59</u>

Payments.

Salary of Director and Assistant,	\$8,500.00	
Expenses of Arboretum, services, labor, &c.,	7,328.01	
Specimens and expenses for Herbarium and Museum,	1,007.77	
Books,	2,889.62	<u>\$14,925.40</u>

TABLE NO. XII.

SCHOOL OF VETERINARY MEDICINE.**RECEIPTS.**

Term bills, for instruction,	\$4,874.00	
Fees for use of microscopes,	27.00	\$4,901.00
Fees from Hospital and Forge,	\$15,548.58	
Interest on deposit with New England Trust Co.,	14.07	
Gifts for Charity Hospital,	888.00	
Subscriptions to Hospital,	740.00	
Insurance, on account of fire of March 16, 1898,	226.50	
Fees from Free Clinic,	255.47	<u>17,647.57</u>
		<u>\$22,548.57</u>

TABLE NO. XII, CONTINUED.

PAYMENTS.

Salaries for instruction,	\$6,155.82	
Medical School, "	494.00	
Dental School, "	200.00	
Clerk,	350.00	
Services and wages,	5,845.08	
Proctors,	21.00	
Scholarships,	300.00	
Repairs and improvements,	299.56	
Repairs on account of fire of March 16, 1898,	226.50	
Fuel,	326.76	
Water,	106.40	
Lighting,	483.50	
Printing,	161.26	
Furniture,	52.82	
Instruments and apparatus,	136.78	
Stationery, postage, telephone, &c.,	551.86	
Advertising,	152.69	
Taxes,	261.30	
Insurance,	116.15	
Hay, grain, supplies, &c.,	4,882.09	
Freight, diplomas, and sundries,	306.03	
Interest on advances,	1,220.30	
Rent,	1,480.00	
Free Clinic expenses,	146.98	\$24,276.88

TABLE NO. XIII.

MISCELLANEOUS FUNDS.

Bussey Trust.

Receipts.

Net income from Real Estate,	\$25,058.73
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Payments.

Annuities,	\$4,000.00	
Expenses on Bussey portraits and furniture,	50.00	
One-half of the remaining income to Bussey Institution,	10,504.36	
One-quarter " " Divinity School,	5,252.18	
" " " " Law School,	5,252.18	\$25,058.73

Price Greenleaf Fund.

Receipts.

Income of special investment,	\$31,275.56
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Payments.

Scholarships,	\$3,000.00	
Beneficiary money transferred to College account,	14,137.78	
Balance of income for Library expenses,	14,137.78	\$31,275.56

TABLE NO. XIII, CONTINUED.

Gray Fund for Engravings.

<i>Receipts.</i>		
Interest on Fund,	\$733.20	
Sale of Catalogue,	5.00	\$738.20
<hr/>		
<i>Payments.</i>		
To the Treasurer of the Museum of Fine Arts,	\$222.28	
Expenses and additions to collection,	465.01	\$687.29
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Woodland Hill Fund.

<i>Receipts.</i>		
Interest on Fund,		\$298.49
<hr/>		
<i>Payments.</i>		
Filling Muddy River lot,	\$2,927.50	
Taxes,	455.00	
Plans and surveys,	214.40	
Legal services,	286.50	
Bussey Institution, balance of income,	182.44	\$4,065.84
<hr/>		

Daniel Williams Fund.

<i>Receipts.</i>		
Interest on Fund,		\$721.05
<hr/>		
<i>Payments.</i>		
Treasurer of Mashpee Indians,	\$513.08	
" " Herring Pond Indians,	257.11	\$770.19
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Sarah Winslow Fund.

<i>Receipts.</i>		
Interest on Fund,		\$209.32
<hr/>		
<i>Payments.</i>		
Minister at Tyngsborough, Mass.,	\$109.77	
Teacher at " "	109.77	
Commission on income, credited to University,	5.28	\$324.77
<hr/>		

TABLE No. XIII, CONTINUED.

Class Funds.

Receipts.

Class of 1834, income of special investment,	\$40.00	
" 1844, " " " " 	234.85	
" 1853, " " " " 	149.00	\$423.85

Payments.

To Secretary of the Class of 1844,	\$200.00	
" " " " " 1853,	149.00	\$349.00

John Witt Randall Fund.

Receipts.

Interest on Fund,	\$1,804.14	
Sale of books,	969.85	\$2,773.49

Payments.

Salary of Curator and expenses,		\$357.34
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Sundry Accounts.

Receipts.

Gospel Church Fund (accumulating).		
Interest on Fund,	\$381.04	
Robert Troup Paine Fund (accumulating).		
From special investment,	1,417.50	
Gore Annuity Fund, interest (part),	255.62	
O. W. Doe Scholarship Fund.		
Part of interest on Fund,	30.56	
William Hilton Scholarship.		
Part of interest on Fund,	26.04	
Henry Willard Williams Fund.		
From general investment,	\$392.57	
" special " 	1,273.50	\$1,566.07
Harvard Memorial Society Fund, interest,	8.74	
Anonymous Fund, interest,	221.80	
Gains and Losses for General Investments, gain on		
Chicago Sanitary District 5 per cent. bonds sold, . .	945.83	
Harvard Ellis Fund, gain from change of special		
investments,	8,523.75	
Amount carried forward,	\$13,226.45	

TABLE NO. XIII, CONTINUED.

Amount brought forward,	\$18,326.45	
Henry Willard Williams Fund, gain from change of special investments,	7,187.00	
School of Veterinary Medicine, from University account to provide for the deficit in 1897-98,	1,728.81	
Bursar's sundry accounts,	8,449.15	
Advances to William Belden Noble Lectures, from General Investments,	217.63	
Advances to Charles Haven Goodwin Scholarship, from General Investments,	38.24	
Advances to Jefferson Physical Laboratory, from General Investments,	52.80	
Advances to Department Libraries, from General Investments,	38.27	
Advances to Farrar Book Fund, from General Investments,	7.86	
Advances to George A. Gardner Fund, from General Investments,	20.45	
Advances to Francis James Child Memorial Fund, from General Investments,	89.63	\$31,005.79

Payments.

Gore Fund, annuity,	\$255.62	
Henry Willard Williams Fund, annuity,	1,162.50	
Gurney Fund, annuities,	1,000.00	
Anonymous Fund, annuity,	200.00	
Advances to Botanic Department, repaid in part,	803.05	
Price Greenleaf Fund, loss from change of special investment,	110.00	
Sundry balances,	283.28	\$3,814.45

GENERAL SUMMARY OF THE TABLES.

Table.	Receipts.	Payments.
I. University,	\$131,659.75	\$106,966.89
II. College,	630,274.26	593,358.60
III. Library,	85,910.60	54,791.03
IV. Divinity School,	86,452.40	38,096.04
V. Law School,	103,381.81	70,273.92
VI. Medical School,	145,747.54	144,748.10
VII. Dental School,	30,771.02	25,403.21
VIII. Museum of Comparative Zoölogy,	38,003.09	30,488.44
IX. Peabody Museum of American Archae- ology and Ethnology,	10,058.91	9,834.89
X. Observatory,	46,175.46	47,192.05
XI. { Bussey Institution,	17,863.59	18,601.63
James Arnold Fund,	6,883.10	6,538.95
Arnold Arboretum,	15,251.59	14,225.40
XII. School of Veterinary Medicine,	22,548.57	24,276.88
Bussey Trust,	25,058.72	25,058.72
Price Greenleaf Fund,	31,275.56	31,275.56
Gray Fund for Engravings,	738.20	687.29
Woodland Hill Fund,	293.49	4,063.84
XIII. { Daniel Williams Fund,	721.05	770.19
Sarah Winslow Fund,	209.32	224.77
Class Funds,	423.35	349.00
John Witt Randall Fund,	2,273.49	357.34
Sundry Accounts,	31,005.79	3,814.45
	<hr/>	<hr/>
	\$1,362,982.66	\$1,241,399.24
	1,241,399.24	
	<hr/>	<hr/>
Balance,	\$121,583.42	

Which is the net increase of the Funds and balances, excluding gifts for capital account, as also shown on page 43.

Certificate of the Committees of the Corporation and Overseers of Harvard College, for examining the Books and Accounts of the Treasurer entered in the Journal kept by him.

The committees appointed by the Corporation and Overseers of Harvard College to examine the books and accounts of the Treasurer for the year ending July 31, 1898, have, with the assistance of an expert chosen by them, examined and audited the Cash book covering the period from August 1, 1897, to July 31, 1898, inclusive, and have seen that all the bonds, notes, mortgages, certificates of stock, and other evidences of property, which were on hand at the beginning of said year, or have been received by him during said year, are now in his possession, or are fully accounted for by entries made therein; they have also noticed all payments, both of principal and interest, indorsed on any of said bonds or notes, and have seen that the amounts so indorsed have been duly credited to the College.

They have in like manner satisfied themselves that all the entries for moneys expended by the Treasurer, or charged in his books to the College, are well vouched; such of them as are not supported by counter entries being proved by regular vouchers and receipts.

They have also seen that all the entries for said year are duly transferred to the Ledger, and that the accounts there are rightly cast, and the balances carried forward correctly to new accounts.

(Signed,)

HENRY L. HIGGINSON,	}	<i>Committee on the part of the Corporation.</i>
ARTHUR T. CABOT,		

MOSES WILLIAMS,	}	<i>Committee on the part of the Board of Overseers.</i>
CHAS. HENRY PARKER,		
JACOB C. ROGERS,		
ISRAEL M. SPELMAN,		

Boston, January 6, 1899.

